THE

Journal of the American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

Vol. VII. CHICAGO, AUGUST 21, 1886. No. 8.

ORIGINAL LECTURES.

SOME PRACTICAL HINTS UPON THE TECHNIQUE OF AN ASEPTIC SURGICAL OPERATION.

A Clinical Lecture Delivered in the Carnegie Laboratory,

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[Reported by DR. H. SEYMOUR HOUGHTON]

GENTLEMEN:—In finishing, this morning, the winter course of lectures upon the Principles and Practice of Surgery, I propose to give you some practical hints. These hints will have reference to the antiseptic precautions which should be observed in the performance of any surgical operation of great or small magnitude. If the principles upon which antiseptic surgery is based are true—and there is no doubt upon this point—it is necessary to observe the same care in opening an abscess as in opening a major joint or exposing the peritoneal cavity. You have doubtless been bewildered by all the suggestions which you have listened to from different surgeons in reference to the various methods of employing antiseptics. In my remarks to-day I shall confine myself to the different steps which should be observed in every surgical operation, if sepsis is to be avoided and primary intention is to be secured. I shall assume at the outset that you are all believers in antiseptic surgery, and that the ocular demonstration of the causes of decomposition and putrefaction, which you have seen here this session in the Carnegie Laboratory, have proved conclusively to your minds the truth of this great system of surgery.

At the beginning of the term you saw cultivations of the different micro-organisms upon Koch's sterilized jelly and other media. These micro-organisms were found in the air, in the water, and in the soil, and these same micro-organisms have been demonstrated to you to be the cause of putrefaction. You have seen in the clinics the beautiful results of surgical operations where means have been employed to prevent the access of these micro-organisms in wounds during an operation. You observe to-day that the infusions of beef in these test tubes, which were sealed last September, are as fresh this spring as they were last autumn. These pipette bulbs, which I exhibited to you in the autumn, are here again upon the table before me, and they remain unchanged. No decomposition has taken place in the infusion which I sealed in glass tubes last August in Prof. Tyndall's laboratory in London, under the direction of Mr. Cottrell. These infusions of beef and of turnip are just as pure to-day as they were last summer. You also observe that this flask containing beef-tea, which was sealed last September, is still fresh and pure. I told you that I had seen flasks containing beef-tea which had been kept for ten years, and that there was no trace of decomposition in the infusion. All of these infusions contained in these various flasks upon this table have remained for months free from any contamination, and they will keep forever fresh and pure, because the micro-organisms which float in the air are prevented from coming in contact with the fluids.

The micro-organisms which cause the decomposition in the beef-tea, and milk and vegetable infusions, cause putrefaction in surgical wounds, and when the surgeon is enabled to operate under conditions which prevent the access of these germs into the wound, he will succeed in obtaining primary intention, in preventing suppuration, which is due to the presence of these germs in the wound. We have studied together this subject carefully during the present session, and I shall now endeavor to make a practical application of this knowledge to the treatment of surgical wounds.

In order to observe the small details of antiseptic surgery, one must have a sublime faith in its belief; because the smallest omission, insignificant as it may seem at the time, may be the cause of a complete failure. You will find some opposition to antiseptic surgery among a certain class of surgeons even at the present day. These surgeons will tell you that for over a half a century they have operated and with no precautions to prevent septic infection, and yet their patients lived, and the wounds healed. Many of you, upon your return home, will find that your preceptors are still unwilling to accept the modern views of the day. They will even deride you for the punctilious manner in which you conduct an operation, and boast that their cases recover without all the red tape and paraphernalia which you have been taught to observe. They even look upon you in disdain, and consider all your precautions as a species of pedantry characteristic of newly-fledged doctors. No great revolution has ever been undertaken without opposition; no reformation has ever been brought about without antagonism. As this is true in the political world, so it has its analogy in the

science of surgery. The opposition and antagonism are to be overcome, not by argument, but by persuasion, and by a reference to clinical facts. Compare the results obtained by the practice of antiseptic surgery of the present time with the results obtained by the older practice of fifty years ago, and an appeal to these facts in a kindly spirit will win over men when arguments will cease to convince. It is natural that men imbued with certain principles from their earliest days in the profession, will not change those views, which have already become fixed, to accept other views foreign to their education, and which views they are expected to accept upon the faith of others. You are to anticipate this opposition, and you are to meet it in a kind and friendly manner; and the time is not far distant when these very men will be convinced of their error.

Before considering in detail the steps necessary to the performance of any important surgical operation, I wish to call your attention to a practical point: always study your patient well before operating upon him or her. There is a good deal besides antiseptics to heed. The victory is not always due to the right use of antiseptics; but other factors enter largely into the calculation. Avail yourself of every possible means which will favor your patient. To this end examine carefully into the personal history. A knowledge of the condition of the heart, lungs, kidneys, and other organs, is essential. You should study his habits of mind and body, allay any anxieties on his or her part, assure the patient that all will be well, and encourage him or her in the hope that a speedy and certain recovery may be confidently expected. If the conditions of the patient do not justify you in such sanguine assurances, modify them according to the individual circumstances of the case, and use judgment and discretion. I believe that the mental condition of a patient has much to do with the prognosis, and that too much importance can not be attached to this fact. In every case you should aim to secure primary intention in the wound, with no constitutional disturbance, and for the accomplishment of these objects let me now direct your attention.

In every surgical operation, besides the general principles already enunciated, there are certain details to be observed, if the operation is to be aseptic, and the carrying out of these details will be considered under six different heads:

First. The disinfection of the operating room.
Second. The purification of instruments, etc.
Third. The preparation of antiseptic dressings.
Fourth. The disinfection of patient.
Fifth. The disinfection of operator.
Sixth. The application of the surgical dressing.

First. The Disinfection of the Operating Room.—The day before the performance of any capital operation, especially if it be one in abdominal surgery, I would recommend the disinfection of the operating room. The room should first be scrubbed and dusted and made ready for an operation. I have used burning sulphur for disinfection. The sulphur should be placed upon an iron tray, which is set upon another and larger tray, and the sulphur is then to be ignited. The tray should be placed in as close contact with the ceiling as is safe from fire, and the fumes of the sulphur will descend and fumigate the entire room. It is useless to place the tray upon the floor, because the gas will not ascend and no disinfection will be accomplished. With regard to the room in which an operation is to be performed in the country: In this case the necessity for disinfection is not so great; but if there has been any sickness in the house or any epidemic in the neighborhood, this process of fumigation is simple. A small room should be selected with southern exposure and the carpet and hangings removed, and sulphur can be burned for a few hours previous to a capital operation. If the room has been carefully scrubbed, cleaned and dusted, and then disinfected, you are safe from any local infection. It is always best to remove the carpet and hangings, because you need only a kitchen table and a stand in the room, and the continuous irrigation will do no damage if all the furniture is removed. The sheets and blankets for use during the operation should be loosely thrown upon the table during the fumigation. To some this step may seem superfluous and unnecessary; but in the event of a great operation every possible precaution should be taken to protect the patient from any infection, and no step is superfluous which has for its object the prevention of septic infection following any surgical operation.

Second. Purification of Instruments, Ligatures, Sutures, Sponges, etc.—Too much importance cannot be attached to a careful cleansing of all instruments for use during a surgical operation. Instruments for perfect disinfection should be of solid metal. The blade and handle should be of one piece and consist of a polished surface. I have abandoned the use of all instruments with ivory or pearl or wooden handles. They cannot be perfectly disinfected, and therefore the metal handles should be substituted. As far as possible forceps, and scissors, and all other instruments should be made to be taken apart and disinfected. I have here upon these tables a most elaborate display of surgical instruments, kindly sent at my request by Mr. W. F. Ford for purposes of illustration. Every instrument is made with the one object in view, and that is thorough and complete disinfection. All scalpels are made of one solid piece, and the handles belonging to the saws and chisels are solid metal. I should recommend you to purchase all instruments so constructed as to permit of perfect disinfection. Before an operation all the instruments to be used should be placed in a glass tray such as you see upon this table. I have requested Mr. Ford to import these glass trays from Germany, as they cannot be obtained in this country. Any glass or porcelain dish can be employed for the instruments; but these are so inexpensive and convenient that they will be found a valuable acquisition. Into these clean glass trays a solution of carbolic acid should be poured, of the strength of 1–20. There should be enough of the solution to completely cover the instruments, which should remain in this disinfecting fluid for an hour or two before an operation. The grease or dirt upon the instruments often prevents

the carbolic acid solution from disinfecting certain parts of the metal, and for this reason it is well to let the instruments soak for some time in the solution. Just before operating this solution may be diluted one half with warm water, 1–40, in order to avoid its destructive effect upon the hands of the operator. Carbolic acid is found to be the least injurious to the instruments as a disinfectant, and bichloride of mercury has been demonstrated to be most deleterious. The ligatures for use should also lie in another small glass tray which has a solution of carbolic acid, 1–20. As catgut is liable to become soft and unfit for use in carbolic acid solutions, it is best to preserve it, when not in use, in oil of juniper. About half an hour before operating, the catgut may be immersed in sublimated alcohol—*i. e.*, hydr. bichlor. gr. vijss to alcohol oj—and kept soaking there during the operation. Catgut is the best material for ligatures, as it is aseptic, will not cause irritation and becomes absorbed. Catgut has been shown to be the starting-point of infection, and therefore it should be obtained from a most reliable place. Catgut cannot well be prepared, and should be purchased only as needed. Silk ligatures, which can be used when the catgut cannot be procured in an emergency, can be, however, prepared by the surgeon without much difficulty. The formula given by Mr. Cheyne is a most useful one: take nine parts of beeswax, one part of carbolic acid, and melt these together. Let the silk lie in this until it is fully impregnated with wax and carbolic acid, then draw the silk through an aseptic towel and the friction will remove the superfluous wax. The ligatures can be cut and placed in a solution of carbolic acid, 1–20. The sutures can be made of catgut, or horsehair, or silk, or silkworm or silver; but whichever variety is used, the suture must be thoroughly disinfected, as well as the hare-lip pins. The lead buttons may be used to prevent tension in large wounds. The drainage is most important in every wound. This can be accomplished by means of tubes or by capillarity, as introduced by Mr. Chiene, of Edinburgh.

The drainage-tubes may be of rubber, and the red rubber is preferable because this kind of rubber tubing contains no free sulphur. The tube should vary in length and diameter according to the size, character and situation of the wound. The tube should have holes cut in it at short distances, and the tube when introduced into a wound should not project beyond the surface of the body, otherwise the tube is pressed upon by the dressings and bandage and the lumen of the tube is occluded. If the rubber tube is left too long a time in the wound it may become adherent to the wound by a process of adhesive inflammation and tear off, and part of the tube is then left behind in the bottom of the wound. This unpleasant complication I have lately had happen to me on two occasions, though the tubes were withdrawn within the required time. To obviate this accident I have of late used a tube made by Mr. Ford at my suggestion, consisting of pure ivory. This is polished smoothly upon its outer and inner surfaces. This tube will not collapse like the rubber tube, nor tear off, and possesses the special advantage that it can be used more than once, as the ivory tube can be as thoroughly cleansed and disinfected for use in several operations. These tubes should be introduced by Lister's sinus forceps, and fastened by a disinfected safety-pin.

Drainage by capillarity is employed by strands of catgut which absorb blood and serum, but not pus. The threads of catgut are collected into a bundle, and this kind of drainage is not removed as the tubes are, since the catgut becomes absorbed. The ends of the catgut are left outside so as to produce a syphon action. Horsehair is also used instead of catgut; but the horsehairs are removed from time to time as it seems necessary.

Another method of absorbable drainage was introdubed by Neuber, of Kiel. This consisted of bone tubes which were decalcified. An improvement to these tubes has been made by Mr. MacEwen, of Glasgow. The method of preparing these tubes as described by him is as follows: "The tibiæ and femora of chickens are scraped and steeped in hydrochloric acid and water, 1–5, until they are soft. Their articular extremities are then snipped off with a pair of scissors; the endosteum is raised at one end and pushed through to the other extremity, along with its contents. They are then re-introduced into a fresh solution of the same strength until they are rendered a little more pliable and softer than what is ultimately required (as they afterwards harden a little by steeping in the carbolized solution). When thus prepared they are placed in a solution of carbolic acid in glycerine, 1–10." In ten days they are ready for use after holes have been punched in them. The tubes will last longer if instead of carbolic acid chromic acid is employed.

Protective oiled silk should be used over the line of suture to prevent the irritation of the carbolic acid, and also to prevent adhesion of the dressing to wound. This protective oiled silk can be made in the following manner as described by Sir Joseph Lister: Take ordinary oiled silk, paint it over with copal varnish, and when dry brush over the surface a mixture consisting of one part of dextrine, two parts of powdered starch, and sixteen parts of carbolic acid, 1–20. Carbolic acid will not permeate the oiled silk if the varnish is added, and the mixture permits the piece of protective to be moistened throughout so that dust will not collect in places upon the protective, as it does when the mixture is not employed.

The sponges to be used in every operation must be carefully disinfected, otherwise they may become prolific and dangerous sources of infection. The process of cleaning, bleaching and disinfecting sponges is very complicated, and I would suggest to you that the druggist do this, and when he has prepared them for you to carefully disinfect them, as this can be easily done by allowing them to stand in a glass fruit-jar containing a solution of carbolic acid, 1–20. The jar should be thoroughly disinfected before using it for this purpose, and it should be hermetically sealed at once and not opened until the operation. Any sponges which have been thus prepared and used can be cleaned by allowing them to

stand in water a few days, and this will decompose and wash out the fibrin contained in the meshes of the sponges, and then they are again put up in the hermetically sealed glass jars. The employment of sponges a second time may be considered safe, if the disinfective process is carefully carried out; it is, however, best in every great operation to prepare fresh new sponges.

Third. The Preparation of Antiseptic Dressings.—There has always been more or less mystery, to say nothing of the expense, about the preparation of antiseptic dressings. It has been thought impossible to obtain them except through some especial agency. There is neither mystery nor expense about the preparation of these dressings, and I shall give you a few hints so that you can prepare them for any case and with but small expense. Every surgeon who practices antiseptic surgery has some modification of his own, and I shall only give you some general hints about the preparation of the dressings, so that you can have at command an easy and simple way of making antiseptic dressings. Bandages can be made by soaking cheese cloth for twenty-four hours in a solution of bichloride of mercury, 1–500, or carbolic acid, 1–20. The cheese cloth should be torn and rolled, and then disinfected again and wrapped in parafine paper and kept in an ordinary tin box, so that the bandages are kept from the air. Naphthaline gauze dressing is made by dissolving the crystallized naphthaline in alcohol (in saturated solution), but never in turpentine, as it is too irritating, and allowing the gauze or mull, which must be free from fat and acids, to soak for a day. This dressing is then dried by allowing the alcohol to evaporate, and the naphthaline powder will become crystallized, and then wrapped in the parafine paper and placed in a tin box.

Carbolized gauze can be made by using parafine, resin, and carbolic acid, and soaking the gauze in this mixture. Instead of using the gauze or mull, it is better to buy the von Brun's hospital gauze, which comes already prepared, and then disinfect it. The ordinary gauze must be subjected to some process to free it from the acids and fats, and this has already been done in the von Brun's gauze. The iodoform gauze is prepared by dipping the ordinary von Brun's hospital gauze, which can be purchased from any wholesale druggist, first into a bichloride solution, 1–1000, for a day, and then into a solution of alcohol and glycerine equal parts. The excess of alcohol is forced out by pressing and the iodoform powder is rubbed well into the gauze, when it is spread out upon a large plate of glass. Or the iodoform may be placed in a bowl and the damp gauze kneaded with the hands until the iodoform is evenly distributed in the meshes of the gauze. Bichloride gauze is prepared by soaking for twelve hours the von Brun's hospital gauze in a solution of bichloride of mercury, 1–500.

Combined dressings can be made by placing a thin layer of borated cotton between two layers of the gauze, which may have been soaked previously in naphthaline, or iodoform, or bichloride of mercury, according to the kind of antiseptic dressing required. There are, of course, many other ways of preparing surgical dressings, but any surgeon, by following these simple instructions, can prepare for himself antiseptic dressings, and also find himself independent in this most important matter. All these dressings, while they can be made aseptic, have one objection in common, and that is the irritating effects upon the skin of certain individuals, and while this is oftentimes a serious objection, at present these dressings are the best we have. I have found the naphthaline in alcohol the only dressing which is less likely to irritate the skin.

Fourth. The Disinfection of Patient.—Any part upon which an operation is to be performed is to be made perfectly clean and aseptic. With this object in view the surface is to be washed well with soap and warm water, and then thoroughly scrubbed with a clean nail brush. After the scrubbing, which will remove the grease and dirt and epithelium from the surface, the part should be cleanly shaved with a sharp razor and then again washed, after which ablution the parts should be disinfected with a solution of bichloride of mercury, 1–500. This solution should be used freely and should be irrigated over the parts from an irrigator which is suspended. The vessel should be placed upon a shelf about six feet above the floor. The strength of bichloride can be 1–500 for the skin; but over a wound 1–2000 is of sufficient strength. If a joint is to be washed out 1–10,000 is strong enough, and if the peritoneal cavity is to be irrigated the solution should be very weak, as the extent of absorbing surface is very great. A part of the intestine could be irrigated by a solution of 1–10,000 if outside of the cavity of the peritoneum; but any solution within the cavity must be very weak. Boro-glycerine is the best solution for the peritoneal cavity. Patients are salivated by a continuous irrigation over an extensive wounded surface.

A rubber cloth is a necessary article during an operation. This should be well washed before using with a solution of carbolic acid, 1–20, or a bichloride solution of 1–500. The rubber sheet should be placed under the patient so as to be above the part to be operated upon, and should be gathered up and fastened by safety pins and the lower end be over a pail in order to catch the solution as it is irrigated over the parts before and during an operation. Long sand bags placed under the rubber sheet will form an artificial trough through and along which the irrigating fluid can flow. If the front legs of the operating table are elevated by placing two bricks or wooden blocks under them the force of gravity will cause the fluid to descend and fall into the pail or any receptacle at the end of the table. Clean towels should be wrung out in a warm solution of bichloride, 1–1000, and placed above and below and upon both sides of the part of the body to be operated upon, and fastened at the corners with safety pins so that the wound will not be touched with any part of the body, or any clothes upon the patient may not come in contact with the wound. Any instrument or sponge thus cannot come in contact with any surface which is not disinfected. After an operation all these

blood-stained towels should be removed and clean ones substituted before any permanent dressing is applied. A saturated solution of iodoform and ether or naphthaline and ether can be poured over the part before an operation; but after a thorough disinfection of the part in the manner already described. From the beginning to the end of an operation continuous irrigation should be kept up, so that the parts, and instruments and sponges and ligatures are continually saturated, and thus protected from any possibility of carrying infection. The strength of the irrigating fluid must be graduated according to the character and situation of the wound. This fact should never be lost sight of, that a safe irrigation for the skin is dangerous for a joint and fatal to the peritoneal cavity. The strength, then, of a solution for continuous irrigation must of necessity vary according to the nature of the part to be irrigated. As it is very desirable to have at hand a ready means of making these solutions, the formulæ of the two most frequently used will be appended:

1. For the *bichloride*, the surgeon should prepare a solution of mercury in glycerine as follows:

℞. Hydr. bichlor. ..... ℥ij.
Glycerine ..... ℥iv.
M.

This will give a strength of half a grain to the minim, so that, using this as a standard, and recollecting that 8 grains to the pint corresponds to 1–1000 (approx.), a solution of any strength may be readily computed. Thus, to make 1–1000, it is only necessary to add 16 minims of the glycerine solution to a pint of water, and this in turn may be diluted to any extent.

2. As alluded to above, the use of mercuric solutions is not devoid of danger, and hence, for other than surface irrigation—as in washing out suppurating cavities, *i. e.*, empyema—a milder and less irritating antiseptic is to be preferred. The material best adapted for this purpose is *salicylic acid* according to the formula of Prof. Thiersch:

℞. Acidi Salicylici ..... ℥ss.
Acidi borici ..... ℥ss.
M. Ft. pulv. No. 1.

These powders may be kept on hand, and adding one to a quart of warm water, a solution of convenient strength is secured.

Fifth. The Disinfection of the Operator.—The surgeon and every assistant should be scrupulously clean. The hands should be washed in warm water and soap and scrubbed well with a nail brush and then dipped into a vessel containing carbolic acid or bichloride of mercury. After the hands have thus been washed and the finger-nails cleaned and then disinfected, no towel should be used to dry the hands, for the towel itself may become a source of danger. A rubber apron, previously disinfected, should be worn, and over this a clean white linen apron should be placed, which apron has been carefully prepared by a competent nurse. What has been said in reference to the operator and his assistants is likewise applicable to the trained nurse who is in attendance upon the case, as well as all others who assist in the toilette of the patient. In pointing out these few practical hints in reference to the preparations which should be made for every surgical operation, I do not wish that it should be understood that there is any desire to adhere to one antiseptic solution in preference to others, or to commit myself to any one solution.

The solutions which have been recommended in the lecture this morning are those which up to the present time have been found by the majority of surgeons to be the most satisfactory when all things are taken into consideration. I do not hesitate to state that in my own experience I have seen serious trouble arise from the use of any and all of these solutions. In this bottle is urine which is nearly black, and it was voided by a patient who was obliged to submit to paracentesis thoracis, and the spray of carbolic acid for a few moments thrown upon the chest wall had given rise to this condition of urine. The use of carbolic acid as a disinfectant not only poisons the patient occasionally, but it has been known to produce acute albuminuria in surgeons. Thus it is evident that carbolic acid, while it is the best disinfectant for instruments, sponges, and the surgeon's hands, has nevertheless some serious objections.

Bichloride of mercury is most useful for continuous irrigation, and is perhaps one of the best germicides that can be employed; but it, too, has its objections. Bichloride of mercury ruins surgical instruments, will often produce salivation of patient, and more often will excoriate the skin over whatever part it is used in a dressing.

The question naturally suggests itself to you at this point, what is the best solution to use? I have found sulphurous acid the best for continuous irrigation; but while it is the most efficient germicide, the gas cannot be kept in solution for the purpose of making surgical dressings as the gas escapes from the gauze. Hyposulphite of soda is another excellent solution, and possesses the special advantage of being useful as a disinfectant for instruments, the hands of the operator, for the preparation of surgical dressings and for continuous irrigation; but it has one great disadvantage which prevents its use, and that is the slippery feeling it gives to ligatures and to the surgeon's fingers. Naphthaline is also good for dressings; but it is difficult to get a pure article, and the impure powder is deleterious. I have mentioned these facts simply to show how difficult it is to procure one solution which is applicable for disinfecting instruments without injuring them, for washing the hands without producing unpleasant effects, and finally, for preparing surgical dressings. It is for these reasons that I have already mentioned that up to the present time there is no one germicide which can be used in common for disinfecting instruments, purifying the hands, and preparing dressings. The subject of an efficient germicide with no disadvantages is one still under consideration by surgeons, and until such a perfect germicide is discovered we must be content with what we have at present in use, and employ our solutions with great care and avert as far as possible the serious objections which we find in their use.

An ideal solution is one which can be employed for disinfecting instruments and ligatures and sponges

without detriment, and at the same time be used for continuous irrigation without injury to the patient or to the surgeon, and also one which is easily made and which is economical, and which will not become volatile or render the fingers slippery, or lose its germicidal effect by evaporation. It will be a great advance in antiseptic surgery when a single solution is discovered which will answer all the essential conditions. The great principles of antiseptic surgery will thus be simplified and within the reach of all to carry out in daily surgical practice. The great difficulty heretofore in carrying out the principles of antiseptic surgery in the practice of those not especially educated in this department of surgery has been in the fact that there has been no unanimity of opinion among surgeons as regards the relative value of the different germicidal solutions. Another difficulty has arisen in the fact that one solution of a certain strength must be employed for instruments and another solution for the surgeon, and still another for irrigation, and again another for the dressings. This has led to confusion, and when an ideal solution is found all this technique will be simple instead of complex, and the merest tyro in surgery can carry out the principle upon which this great system of surgery is based.

Sixth. The Application of the Antiseptic Dressings.—Too much importance can not be attached to the permanent dressing after an operation has been performed in an aseptic manner. Carelessness on the part of the surgeon in the application of the dressings may result in complete failure to secure primary intention. The wound should be perfectly dry and free from all loose coagula before the sutures are introduced. The kind of drainage to be employed depends upon the character, situation, depth and size of the wound.

If the wound be small, as, for example, after osteotomy, the strands of catgut inserted into the bottom of the wound with the ends left hanging out of the lower angle of the wound will be found a most efficient and excellent method. If the wound, on the other hand, be large, then a red rubber drainage tube, or the ivory tube on the glass canula, will be found to be the best for providing an escape for the inflammatory exudates which are always present after an extensive wound. The sutures should be of catgut for small wounds; but silk-worm, or silk, or silver, should be employed in amputation wounds or any wounds of considerable size. It is not safe to rely upon catgut if there is likely to be any tension in the wound. I have found that catgut is good for superficial sutures, while the silk-worm or silver, or even hare-lip pins, are best for the deep sutures.

After the edges of the wound are nicely and accurately adjusted by cutting away with a pair of scissors, curved on the flat, any loose fatty or connective tissue which insinuates itself between the lips of the wound, the sutures should be tied, and if any tension exists the button suture can be employed with great advantage. The surface of the wound should now be irrigated for the last time, and then iodoform or naphthaline powder be dusted over the linear incision and then protective placed over the wound, and finally a bandage, which is wet with a bichloride solution, wrapped around the part. The wound is now protected and the surrounding parts are to be carefully dressed. A layer of the combined dressing should now be made to envelop the part at a good distance in every direction from the original wound. This combined dressing should be made secure by an antiseptic bandage. If the wound be a fracture, a plaster-of-paris bandage can now be applied and a layer of borated cotton can be first wrapped about the whole limb before the plaster-of-paris bandage is applied.

If the wound be dressed in general in some such way as has been described, this first dressing need not be disturbed for eight or ten days, unless for the purpose of removing the drainage tube, which can be done without taking down the entire dressings. If the dressings be stained with serum, or there be any other discharge, this first dressing should be removed and a clean new one applied with every antiseptic precaution. It is well in every case to change the dressings after eight days, even if there seems to be nothing wrong. A neglect of this rule has been followed, in my own experience, by some unpleasant complications, and I believe that every surgical wound should be examined as a matter of precaution. I have seen serious trouble occur when a fracture dressing was cut down at the expiration of six weeks; although there never was any evidence or sign of trouble during the six weeks. Whenever a dressing is removed and a new one applied the same attention to details and the same antiseptic precautions should be observed as during the application of the first and original dressing. Carelessness on this point has been followed by suppuration in a wound which had nearly completely healed by primary intention. Every surgical dressing, be it the first or the last, in the history of any wound, should be made with the same care and attention.

Another point seems to me of great importance in the treatment of every wound, and that is the maintenance of absolute rest to the part during the repair of the wound. The equable and uniform pressure upon the wounded part secured by the combined dressings which have been described, are inadequate to secure mechanical fixation to the part without the aid of splints so applied as to maintain physiological rest to the wounded part, as well as the parts in the vicinity of the wound. Every surgeon has his own peculiar way of applying his dressings, and the method which has been described is only intended to impress the general principles involved in wound treatment. The great principles of absolute rest, of free drainage, of uniform compression, of freedom from pain, of absence of constitutional disturbances, together with many other salient principles, are thus maintained by these simple rules in the application of surgical dressings.

Now, gentlemen, having completed the operation with every antiseptic precaution, you are justified in the belief that all will go on well to a successful and and rapid recovery. Should anything happen to prevent primary intention in the wound, you must carefully search for the cause and remedy it at once.

The triumphs of antiseptic surgery are so numerous and so uniform that the cause is to be found in the omission on your part of some detail in the technique of the operation. Look always for the cause to some defect in your manner of operating, or in the use of your antiseptics. If you fail in your first attempts, inquire rigidly into the cause of failure, and do so with the positive assurance that the fault is with you and not with the patient or the system of surgery which you have attempted to practice. It is with this spirit that you should adopt the great principles of antiseptic surgery, and when you are fully convinced by actual experience what great things can be accomplished you will not wonder that hundreds of operations can be consecutively performed and the patients escape from septic infection. We can do now what could not be done a few years ago, and I trust that you may all participate in the great work, and contribute much to the science which we have studied together, and which offers to suffering humanity assistance such as never could be proffered before the introduction of antiseptics.

ORIGINAL ARTICLES.

SOME CASES ILLUSTRATING THE SAFETY OF COCAINE AS AN ANÆSTHETIC IN CATARACT EXTRACTIONS.[1]

BY GEO. E. FROTHINGHAM, M.D.,
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During the past year several experienced operators have published cases and experiences that would seem to condemn cocaine as one of the most unsafe anæsthetics to use in the extraction of cataract. Notable among these we may mention the observations of Nettleship, McHardy, and Browne,[1] who have cited their experiences to show that the use of cocaine has a great tendency to produce panophthalmitis in eyes operated on for the extraction of cataract under its influence. Pflüger charges it with producing neuro-paralytic keratitis as a sequel to operations of this kind made under its influence. Dobrobolski, in a quite large per cent. of his cases, had prolonged nausea and vomiting follow as a result of using a four per cent. solution. Traumatic keratitis, tardy and imperfect healing of the wound made in the extractions, were noticed also as a complication in his cases, and ascribed to the cocaine. Bunge reports three complications apparently caused by its use in the clinic of Graefe, at Halle. These were: destruction of corneal epithelium; vesicular eruption on the cornea; and parenchymatous corneal opacity. By this opacity it destroyed the eye in some of the cases, and impaired vision seriously in six cases out of a total of 150.[2] Many other observers have attributed bad results to the action of cocaine.

[1] Read in the Section on Ophthalmology and Otology, at the Thirty-Seventh Annual Meeting of the American Medical Association.
[1] British Medical Journal, Nov. 21, 1885.
[2] Ophthalmic Review, Nov., 1885, p. 338.

With a view of contributing to a settlement of the question as to whether any of these results may be fairly charged to the action of cocaine, I have thought it worth while to contribute my experience with it in the extraction of cataract, which I present in the form of a table prepared for me by E. B. Patterson, clerk of the ophthalmic clinic under my charge. (See table on following page.)

A smooth operation was obtained in every case but one (No. 21). In this case a slight escape of vitreous occurred before the irridectomy was completed. The lens was drawn out in its capsule by means of a sharp hook, without further loss of vitreous, and a good result was obtained. V. = $\frac{2}{40}$. There was entire freedom from nausea and vomiting in all the cases in which cocaine was employed as an anæsthetic. Only fresh solutions of cocaine were used.

These constitute all the cases of cataract extraction performed by me at the public clinic from October, 1885, to May, 1886. Although alone insufficient to establish or contradict any of these claimed dangers from the effect of cocaine, they will serve to add to the great mass of statistics by which the questions referred to must ultimately be settled, and which will require the united reports of numerous operators. By reference to the table it will be seen that in thirty-nine extractions made since October 10, 1885, cocaine has been the anæsthetic used in thirty-one of the cases. In thirty of these a four per cent. solution was used. In one case, a feeble lady of 80, a two per cent. solution was substituted. Cocaine failed to act as an anæsthetic in three of the thirty-nine cases, and ether was selected on account of the timidity of the patient in four of the cases. The result was good in thirty-six of the thirty-nine cases, improved in two of the cases, and in the other case, in which the patient died of diabetic coma on the 7th day, the result of the extraction was perfect. There was no complication whatever as far as the healing process was concerned. The vision was clear at the first opening of the eye, and remained so up to the time of the patient's becoming unconscious, a few hours before her death. The other two cases were congenital cataract, which had been neglected beyond the period which permits of good results. In these cases degenerative changes called for extraction. In one, operated on under cocaine, vision was much improved, and no complication occurred during the healing process. In the other ether had to be resorted to; slight iritis followed the operation. The patient improved, and is still gaining in visual power.

No inflammatory complications occurred in thirty-four of the thirty-nine cases. Iritis occurred in four of the cases, in two of which ether was the anæsthetic used.

In about seven hundred cataract extractions I do not remember so large a number of consecutive cases that presented so great freedom from inflammatory trouble, either of the cornea or deeper structures, though I have had a larger number of consecutive cases in which perfect results were ultimately obtained, and also with better average of vision. Nor

No.	Date.	Name and Residence.	Age.	Eye Operated on.	Anæsthetic.	Complication During Healing Process.	Discharg'd.	Result.	Remarks.
	1885.								
1	Oct. 10.	E. F., Fargo, Mich.	28	R	Cocaine, 4 pr. ct.	Oct. 27 a small vesicle which had formed at inner angle of wound was punctured and compress applied; no further trouble.	Nov. 30	Good.	Cataract soft; secondary operation on Nov. 27, by needle. V= 20-30 +.
2	" 1.	E. C., Signet, Ohio.	64	L	"	Had iritis controlled by atropine.	Nov. 27	"	Secondary operation upon opaque membrane, needle, Nov. 11. V. = 20-100.
3	" 11.	Thos. McD., Hillsdale, Mich.	68	R	"	None.	Nov. 9	"	V. = 20-40.
4	" 11.	H. S. A., Bay City, Mich.	66	L	"	Slight iritis, controlled by atropine.	Dec. 12	"	Needle operation on capsule. V. = 20-40. Patient has imbedded in iris a particle of steele; has been there 45 years; was not disturbed.
5	" 14.	Kath. McM., Camden, Ont.	63	L	"	None.	Nov. 13	"	Some soft lens matter remains which obstructs vision; is now undergoing absorption. V. = 20-50.
6	" 16.	Jas. L., Medina, Mich.	78	R	"	None.	Nov. 23	"	Some soft lens matter remained. V. = 20-100.
7	" 16.	Mrs. G. F. C., Adrian, Mich.	40	R	Cocaine failed. Ether used.	None.	Nov. 7	"	V. = 20-100.
8	" 31.	G. W. C. Stanton, Mich.	62	L	Ether.	Had iritis on third day; pupil drawn upward Jan. 13; membrane formed after operation incised and central pupil made.	Jan. 25, 1886	"	V. = 20-40. Patient lost R. E. from inflammation after cataract extraction last year.
9	Nov. 4.	M. B., Bloomdale, Mich.	59	R	Cocaine, 4 pr. ct.	None.	Dec. 8	"	V. = 20-40.
10	" 4.	E. S. G., Albion. Mich.	68	R	"	None.	Nov. 23	"	V. = 20-40.
11	" 11.	H. J., Wayne Co. House, Mich.	51	L	"	None.	Dec. 14	"	V. = 20-70.
12	" 21.	Mrs. C. R., Allendale, Mich.	57	R	"	None.	Dec. 29	"	Dec. 19 secondary operation (needle). V. = 20-40.
13	" 21.	A. McA., Alpena, Mich.	28	R	Ether.	Had iritis, not severe, but left a membrane.	Dec. 29	"	Patient has had trouble with eyes for several years. L. E. was lost 8 yrs. ago after an operation; R. E. has had two iridectomies; Dec. 19 opaque capsule lacerated, resulting V. = 20-40.
14	Dec. 2	M. W., Swartz Creek, Mich.	34	R	Cocaine, 4 pr. ct.	None.	Dec. 19	"	Some soft lens matter remains, soft cataract. V. = 20-70 and improving.
15	" 2	E. T., Sherwood, Mich.	53	R	"	None.	Dec. 31	"	V. = 20-20.
16	" 26.	Jas. C., Bowling Green, O.	55	R	Cocaine failed. Ether used.	None.	Jan. 6, 1886	"	V. = 20-40. Cataract had undergone degeneration and was extracted in capsule.
17	" 14.	E. G., Mt. Pleasant, Mich.	54	L	Cocaine, 4 pr. ct.	None.	.....	"	V. = 20-40.
	1886.						1886	"	
18	Jan. 14.	O. D., Duplaines, Mich.	63	R	"	None.	Feb. 1	"	V. = 20-40.
19	" 16.	M. F., Battle Creek, Mich.	26	R	"	Died on 7th day from diabetic coma; no inflammatory complications of eye.	.....	"	Vision good as determined by usual trial on opening eye. See special reference in summary.
20	" 23.	J. A. McO., Stanley, Ohio.	45	R	Cocaine failed. Ether used.	None.	Feb. 13	"	V. = 20-40.
21	" 20.	J. B., Medina, Mich.	54	L	Cocaine, 4 pr. ct.	None.	Feb. 20	"	Vitreous escaped, lens extracted with sharp hook, resulting V. = 20-40.
22	Feb. 6.	H. A., Schoolcraft, Mich.	70	R	"	None.	Feb. 27	"	V. = 20-70. Has opaque and wrinkled capsule left; can be improved by secondary operation.
23	" 27.	P. G., Flint, Mich.	80	L	"	Iritis on 4th day.	April 1	"	V. = 20-200. Secondary operation for membrane left by iritis made Mar. 17—needle.
24	Mar. 6.	E. R., Clayton, Mich.	60	R	"	None.		"	V. = 20-70. Cataract over-mature and shrunken.
25	Feb.	D. P.	58	L	"	None.	.....	"	V. = 20-40.
26	Mar. 13.	A. W.	52	R	"	None.		"	V. = 20-70. Has opaque and wrinkled capsule, and can be improved by secondary operation.
27	" 13.	C. C., Howell, Mich.	56	R	Ether.	None.		"	V. = 20-20. Cocaine not tried, as patient was too nervous.
28	" 24.	A. S., Paw Paw, Mich.	75	R	Cocaine, 4 pr. ct.	None.		"	V. = 20-70. Slight membrane from capsulitis; April 13 memb. lacerated; April 26 V. = 20-40.
29	" 21.	H. C., Homer, Mich.	67	L	"	None.		"	V. = 20-40.
30	April 3.	J. M., Calumet, Mich.	65	R	"	None.		"	V. = 20-30.
31	Mar. 31.	E. L., Alpena, Mich.	24	L	"	None.		"	V. = 20-40. Soft cataract.
32	April 3.	J. S., Peru, Ind.	70	R	"	None.	April 26	"	Case was complicated by glaucomatous condition. See special reference in summary.
33	" 10.	A. G., Hamilton, Ont.	14	R	Ether.	None, except slight iritis.		"	Metamorphosed soft cataract; needle operation made Dec. 9, '85, but as no absorption had taken place it was necessary to extract it.
34	" 14.	J. L. H., Plainwell, Mich.	70	L	Cocaine, 4 pr. ct.	None.		"	V. = 20-40 +.
35	" 14.	J. R., Britton, Dakota.	16	L	Ether.	None.		"	Degenerated congenital cataract requiring extraction. Patient much improved.
36	" 14.	Mrs. M. A. H., Eaton Rapids, Mich.	80	R	Cocaine, 2 pr. ct.	None.		"	V. = 20-70 +.
37	" 14.	N. P., Chatham, Ont.	57	L	" 4 pr. ct.	None.		"	V. = 20-20.
38	" 17.	C. S., Fayette, Ohio.	68	R	"	None.		"	Test made May 12th. V. = 20-40 +.
39	" 24.	E. F., Fargo, Mich.	28	L	"	None.		"	Vision tested May 10, = 20-40.

have I had so remarkable freedom from nausea and vomiting after the extractions as when ether or chloroform were used, saying nothing of the embarrassment from this cause that so often occurred during the operation when made under these anæsthetics, and which has deterred some operators from resorting to them. By using cocaine we also avoid that agitation of the patient which results from excessive bronchial secretion, so often produced when ether is used. Indeed, in my experience, so often is the patient unpleasantly affected from this action of ether, and the obtaining a smooth operation endangered by it, that I have been in the habit for years of substituting chloroform in all such cases, believing that the increased risk to the life of the patient arising from this substitution is warranted in view of the greater certainty of obtaining a smooth operation, and thus increasing the chances of restoring sight.

From my own experience, I am inclined to regard cocaine as the safest anæsthetic we possess for use in cataract extractions, so far as subsequent complications are concerned. While it may, by its vasomotor constriction, or paralytic action, temporarily diminish the nutrition of the cornea, I believe *that* impairment to be only brief, except in rare cases. I believe it is no more likely to interfere with the healing of the wound in this way, than the general depression arising from the effect of chloroform. From what we, at present, know concerning the action of each of these anæsthetics, it is rational to suppose that there is far less disturbance of the interior circulation of the eye produced by cocaine than by either of the other two, and consequently less liability of panophthalmitis following its use in these operations. So far as its effect to produce shedding of the corneal epithelium is concerned, in most of the cases I have seen reported, antiseptic solutions had also been used, and I am inclined to ascribe this corneal complication to some carelessness in the use of these solutions, rather than to the effect of cocaine. At any rate, it has never been observed by me to follow the use of cocaine when resorted to for this or any other purpose. Solutions of cocaine, when kept for more than a few days, or gelatine tablets containing cocaine (as they are hygroscopic and liable to change), may be attended with danger when used in operations upon the eye.

In reviewing these cases, cases nineteen and thirty-two are worthy of brief special consideration. Case nineteen illustrates how guarded must be our prognosis in all cases of diabetic cataract. This patient had not been aware of her condition, and was made acquainted with it only through the investigations I insist upon as preliminary to cataract extractions. Among these preliminary examinations I insist upon an analysis of the urine. This has been my custom for many years. For the past few years I have been especially urgent upon this point by reason of an unfortunate result that occurred in a case in which I had neglected it, and was thus unprepared to expect misfortune. A lady about 60 years of age presented herself at my clinic having the appearance of a person in good health, and claimed to be perfectly well. She was blind from senile cataract, both lenses presenting the peculiar amber hue, and there was apparently no complication. She was very urgent for an immediate operation, and presented reasons that induced me to yield to her request, and without waiting for the usual urine analysis I operated, using ether as the anæsthetic. The patient suffered from prolonged nausea and vomiting and seemed not fully to recover from the effect of the anæsthetic, and died of coma about ten days after the operation was performed. The wound had healed nicely and the eye presented no sign of complication. Examination of the urine made during the illness showed both albumen and sugar, and an autopsy revealed that the patient suffered from that somewhat rare combination of Bright's disease and diabetes mellitus. Recognizing the injurious effect of ether in Bright's disease, I blamed myself for administering it in this case without knowing the condition and warning the friends of the increased danger.

In case 19, however, we had the diagnosis clear before the operation. As cocaine relieved us of the constitutional disturbance incident to a general anæsthetic, and the patient was courageous, urgently soliciting the operation, and cheerful during its performance, there was no reason for expecting that the extraction might hasten the fatal issue of the disease. All this was duly considered in my discussion of the case before the class, and I had also stated the uncertainty of life in any of these cases. I was not, however, prepared to expect a fatal termination of the disease in this case so soon. The result shows us how careful must be our prognosis as to life in such cases, though it should have no effect to deter us from operating when a person is blind from diabetic cataract and presents no evidence of immediate danger from the constitutional disease. If the patient lives but a few weeks, the blessings of sight will be a sufficient reward for all he endures, and with cocaine we may expect to perform the operation on courageous and hopeful patients with no fear of hastening the fatal issue. Neither can cocaine or the operation be charged with the result in this case.

Case 32 ilustrates the favorable results that sometimes come from apparently hopeless operations, and shows that cocaine may be used safely even when there is increased tension. He began to notice dimness of sight about three years ago, the sight failing slowly but constantly. There was no pain until about three months preceding his appearance at my clinic. During these three months he has had slight pain in eyes, and headache. The left eye was entirely blind; he could not perceive the brightest light, pupil dilated and would not respond to brightest light, lens opaque and pressing against the cornea, + 72, no pain at present. Right eye perceives bright light, pupil dilated and responds slightly and slowly to bright light, lens opaque and bulging into anterior chamber, which is almost completely obliterated, + 71, no pain at present, a few enlarged anastomosing veins in ciliary region. This patient was told that there was no prospect of a successful operation, but at his urgent request it was undertaken on right eye, thinking it possible to preserve perception of

light for awhile longer and perhaps enable him to see large objects. On March 20 a large iridectomy was made, using cocaine as the anæsthetic. The anterior chamber was so nearly obliterated that only by careful use of Graefe's knife could a small incision into the anterior chamber be made, and this had to be enlarged greatly by the scissors to allow a sufficiently large piece of the iris to be seized and excised.

April 3.—The patient has very completely recovered from former operation. Tension normal, and anterior chamber nearly of normal depth. Cocaine was used and lens extracted. Operation smooth, and no after complications occurred.

April 26.—Eye tested, and with + 2/7 S. V = 20/10 sharp. Ophthalmoscopic examination showed results of serous choroiditis and there was choroidal atrophy about the disc, but no excavation of disc itself. As regards the action of cocaine, the results in these cases would tend to establish the following propositions:

1. Cocaine relieves the operator from the embarrassments during the operation for cataract that arise from vomiting; also from the agitation of his patient which results from excessive bronchial secretion, or stertorous breathing. These are often very troublesome when ether or chloroform is used.

2. The danger to the result which often arises from nausea and vomiting after the extraction, when other anæsthetics are employed, is very surely avoided when cocaine is selected as the anæsthetic agent and is properly used.

3. The danger arising from the depressing effect of cocaine upon the nutrition of the cornea is no greater than in cases where ether or chloroform are used. The depression of the circulation, which often arises from either of them, may affect very injuriously the corneal nutrition.

4. The disturbance of the circulation of the interior of the eye, and consequent danger of panophthalmitis from this cause, is probably less in using cocaine for this operation, than in resorting to general anæsthesia.

5. The danger of sepsis and consequent panophthalmitis from the use of cocaine may be avoided by using only fresh solutions.

AMPUTATION AT THE HIP JOINT FOR MORBUS COXÆ; WITH A CASE AND A SPECIMEN.[1]

BY DONALD MACLEAN, M.D.,
OF DETROIT, MICH.

The points which I desire especially to enforce by the following case are:

First.—That there are cases of hip joint disease which, though utterly desperate so far as all the ordinary procedures are concerned, may still be rescued and restored to health by the extreme measure of *amputation at the hip joint.*

Second.—That the operation of resection, if performed at all, should be performed at a much earlier stage of the disease than has hitherto been customary.

Third.—That with proper precautions, the operation of amputation at the hip joint for disease is a safe and satisfactory procedure.

Case.—C. S. B., æt. 17, from Muncie, Ind., came to my public clinic at the University of Michigan January 5 of the present year, and in response to inquiries made the following statement:

Eight years ago, he fell on the ice and sustained a contusion of the left hip. Still, it was not until the following winter that he became so much disabled as to require the aid of a cane in walking. Liniments and electric baths were prescribed at that time, but of course they did not do any good. Two years later extension by means of the weight and pulley was resorted to, also an extension splint, but in spite of these very judicious and rational measures the disease continued to progress.

Eighteen months ago an abscess formed in the region of the trochanter major and was opened. Before long an abscess formed on the inner aspect of the thigh and was opened. From these abscesses sinuses resulted, which have continued to discharge ever since. At the time of his admission into the University Hospital, the discharge from these sinuses was not extremely profuse, but it was intensely fetid. He was greatly emaciated, and suffering from marked hectic symptoms. The thigh was flexed to a right angle with the trunk, and there was no movement discoverable in the hip joint. The knee joint was also flexed and partially anchylosed. All the muscles of the limb were contractured and atrophied. Under these circumstances resection of the joint was at once and for obvious reasons excluded. In short, it seemed that the choice lay altogether between one or the other of the two following alternatives:

First. Expectancy, which of course promised only speedy exhaustion.

Second. Amputation at the hip joint, and this operation commended itself to my mind as a justifiable and even hopeful expedient, provided, *first*, that the pelvic bone should on examination prove to be fairly healthy—that is to say, not too far involved in the carious affection; and *second*, that the general powers of the patient's constitution had not been too thoroughly undermined by the long-standing and exhausting disease. The proposition having been fully explained to the patient (a most intelligent young man), he eagerly assented and placed himself in my hands.

The final decision as to the condition of the os innominatum was reserved till the time of the operation, and had it been found too far diseased the completion of the operation would have been abandoned as useless and unjustifiable. Fortunately, no such reason for the the abandonment of the operation was met with. The disease was confined entirely to the acetabulum, and even there was quite superficial and small in extent.

So far as the strain on the patient's weakened powers was concerned I succeeded in convincing myself that, provided due precautions against hæmorrhage and shock were used, he would be able to weather the storm. With this object in view I determined to

[1] Read before the Surgical Section of the American Medical Association, at the Thirty-Seventh Annual Meeting.

use a simple and somewhat primitive form of aortic compressor: an instrument made under my own directions some years ago by a common blacksmith, and which has afforded me indispensable aid in a considerable number of instances.

The operation was performed on March 1, 1886, under chloroform. Hardly a drop of blood was lost. The patient was only a few minutes on the table. The degree of shock was very slight.

The wound was treated antiseptically throughout and healed rapidly, so that on April 9 the patient was able to return to his home in a better state of health than he had known for several years. Reports recieved up to the present time have been altogether favorable. I now present for inspection by the members of the Section the femur of this patient. It will be observed that the disorganization of the medullary canal extends *from the one end of the bone to the other*. Also, that the head of the bone is very nearly all absorbed away. A single glance at this specimen is sufficient to determine effectually the question of the propriety of the operation; or at least the utter hopelessness of the case without this measure.

Finally, I think we may safely deduce from this case the general principle that if resection of the hip joint is to afford permanent satisfaction, it must be performed at a much earlier stage of the disease than has heretofore been customary; that is to say, while the disease is limited to the head of the bone, and before the medullary canal of the femur has become involved, which it is certain sooner or later to do.

MEDICAL PROGRESS.

RESORCIN.—The *Centralblatt für die ges. Therapie*, March, 1886, contains the following observations concerning resorcin by M. IHLE, of Leipsig, reported by Jarisch. The specific antiseptic properties of resorcin can be best noticed in herpes tonsurans. After two or three applications of a strong resorcin ointment the inflammation is allayed, and if the plates of epidermis tanned by the resorcin are removed, it will be found that only in those hairy regions where the spores have made their way to the bottom of the hair follicles is it necessary to continue treatment.

A very great advantage in the treatment of parasitic sycosis with resorcin is that the beard need not be epilated, the hairs loosening of themselves under the treatment. The pastes used should be applied two or three times a week, thickly with a brush, and rubbed well into the parts, which are then to be covered with cotton. It is at all times well for the physician to apply the preparation himself, and increase the strength with the progress of the cure. For instance, if the first application is a 10 per cent. paste and causes no great irritation, the next may be of 25 per cent. and the strength may be thus gradually increased to 50 or 80 per cent., then when the pus formation and irritation begin to decrease, applications must be continued in decreasing strength, following a similar scale.

As spores may still exist in a case of apparent cure, it is advised to give the patient a 3 per cent. salve to apply at first daily, and later on once or twice a week. Now, for the first, should shaving be permitted, because in the energetic treatment with resorcin, shaving should be absolutely forbidden on account of the irritation which it causes.

The following ointments are recommended:

℞ Resorcin purissim..... 10
Vaselini albi..... 50
Amyl. Oryzæ,
Zinci Oxidi.....aa 25
M. ft. past.

With an increase in the amount of resorcin, it is necessary to decrease proportionately the zinc and starch. Therefore for stronger ointments, the following is used:

℞ Resorcin puriss..... 50
Vaselin. albi..... 60
Zinci Oxid.,
Amyl. Oryzæ.....aa 20
M. ft. past.

The author speaks of resorcin in the treatment of pityriasis versicolor and eczema marginatum as being attended with absolutely sure results. He also recommends it in the treatment of alopecia areata and seborrhœa cum defluvio capillorum.

For these he uses:

℞ Resorcin puriss..... 5.10
Ol. Ricini..... 45.
Alcohol .....150.
Bals. Peruv..... 0.5
M S. Apply daily to head with a flannel rag.

The itching of the seborrhœa is said to cease entirely under this treatment.

Condylomata acuminata treated with an eighty per cent. resorcin salve, daily applied, quickly disappear. It is well to apply a five to ten per cent. salve for some time afterward to remove the tendency to their redevelopment.

Dr. Ihle does not approve of the application of resorcin to eczema and other inflammatory skin diseases, because of its irritating properties.

Dr. Unna, however, in a pamphlet upon Ichthyol and Resorcin (Hamburg and Leipsig, 1886), recommends a five to ten per cent. ointment in the treatment of seborrhœic eczema resulting from alopecia areata, and prefers it to ichthyol or pyrogallic acid.

He mentions as a special advantage its lack of color and freedom from staining. In psoriasis its action is not so favorable, but for all dry scaly eczemas of the face he recommends it.

On account of the difficulties of diagnosis in skin diseases of the face, he advises that the drug be discontinued the moment it is noticed that no improvement is taking place. In scars or pitting from variola, traumatism, acne, or other cause, and in false keloid he has found it of benefit, but its advantages over ichthyol and other reducing substances lies wholly in the fact that it does not produce discoloration and does not inflame the eyes as does chrysarobin, although under certain circumstances the latter drugs have preference. Dr. Unna declares himself quite convinced that in acute exanthema, and espe-

cially in scarlatina and variola, resorcin is destined to play a very important part.

In chronic skin diseases its use must remain limited to external application.—*Journal of Cutaneous and Venereal Diseases*, August, 1886.

THE CONNECTION BETWEEN GLYCOSURIA AND BILIARY OBSTRUCTION.—DR. W. A. WYATT says it has been demonstrated by Dr. Wickam Legg, and confirmed by Von Wittich, that ligature of the bile-ducts causes the disappearance of glycogen from the liver, and that after ligature glycosuria cannot be produced by puncture of the floor of the fourth ventricle or section of the cervical sympathetic. It is presumed that the retention of bile within the liver interferes with the nutrition of the hepatic cells, and so prevents them from carrying on their natural function of glycogen formation.

The following clinical case appears to me to support the conclusion drawn from the above mentioned experiment. A lady, aged 60, has for some time suffered from glycosuria, and latterly albumen has been present in addition; the amount of sugar excreted usually ranges from 10 to 12 grains per ounce, and no material alteration in this quantity occurred when the urine became albuminous. The urine has been always highly saccharine, even when a strictly nitrogenous diet was enforced, a symptom pointing to the fact that a too rapid metamorphosis of hepatic glycogen was the probable source of the excess of sugar in this case. A short while ago this patient became jaundiced, the urine containing both biliary acid and coloring matters, and with the appearance of the jaundice the sugar diminished from its usual amount to a hardly perceptible trace, Fehling's reagent, the picric acid and indigo carmine tests, giving almost negative results. The disappearance of the sugar could in no way be accounted for by alterations in diet, for the appetite and manner of living remained the same as usual. In this, case, however, there was undoubtedly some obstruction to the bile-ducts, as no bile could be detected passing with the stools, so that a pathological condition was here established analogous in its result to the experimental ligature, for in each case the escape of bile was effectually hindered. If, then, it is correct that the retention of bile within the liver prevents the formation of hepatic glycogen, it necessarily follows that the same retention must greatly diminish the amount of sugar in a case of glycosuria of that type in which the disease is chiefly dependent on a too rapid metamorphosis of glycogen into sugar. In making deductions from a single case, it is well-nigh impossible to separate the *post hoc* from the *propter hoc;* but at any rate, in this case, coincident with the retention of bile, the amount of sugar excreted fell to zero, and remained so as long as the obstruction lasted—speedily, however, regaining its usual amount of 10 grains per ounce as soon as bile was again poured into the intestines.

The whole subject of glycosuria up till now has been elucidated more by the expermental physiologist than by the physician. However valuable such experiments may be, the results obtained from them are often very fallacious, the condition under which they are conducted in many cases being far removed from anything existing in nature, so that confirmation of such observations by clinical work is always highly satisfactory. Of course the phenomena of this case may bear an interpretation differing widely from that which I have assigned to them; still I venture to think that the biliary retention being accompanied by an almost entire absence of sugar in the urine was not a mere coincidence, but that the two symptoms were related to each other as cause and effect.—*Lancet*, May 15, 1886.

HOT BATHS, HOT PACKS, AND PILOCARPINE COMPARED.— DR. ZELENETSKI, of St. Petersburg, in order to examine the comparative effects of hot baths, pilocarpine, and hot wet sheet packing on nephritis, treated the same patients on different days by means of each of these methods, observing the effects on the temperature, pulse, etc. Fifty-seven observations were made on seven patients, who were as nearly as possible under identical conditions. Twenty-three baths, eighteen hypodermic injections of pilocarpine and fifteen hot packs were given. The hot baths produced the greatest loss of weight, averaging 801 grammes, and the packing the least, averaging 94 grammes, pilocarpine producing effects of an intermediate character. Here the mean loss of weight was 514 grammes—306 by perspiration, and 208 by salivation. The temperature rose considerably after the baths, and even at the end of three hours was always above normal. The packing caused it to fall at first; but after an hour it rose, and returned to its original height within three hours. With pilocarpine it was reduced for two hours, and then rose to normal. The pulse corresponded to the temperature with the baths, but became slower with both packs and pilocarpine. The patients expressed themselves as feeling the most improvement after the baths; the pilocarpine causing complications, such as headache and nausea, and in one case vomiting and collapse. —*The Lancet*, June 12, 1886.

THE TREATMENT OF PELVIC HÆMATOCELE BY GALVANO-PUNCTURE.—APOSTOLI and DOLÉRIS, *Zeitschrift für Therapie*, 1885, No. 18, recommend this treatment, their method of operating being as follows: Having carefully determined, by means of rectal and vaginal examinations, the precise relations of the tumor, with special reference to the presence of surrounding intestines or large vessels, they plunge into its most prominent part a needle connected with the negative pole, the positive (consisting of a disc of potter's clay) resting upon the abdomen, and pass as strong a current as can be obtained by a Leclanché battery. The séance lasts from five to ten minutes. A fistulous opening is established in the vaginal fornix, which is kept patent; if it closes prematurely, it is reopened by a second application of the needle. After being opened, the sac is to be irrigated twice daily with an antiseptic solution. The only danger in this operation, according to the writers, is the accidental puncture of a large vessel, the hæmorrhage from which is readily arrested by the cautery.—*New York Med. Journ.*, July 31, 1886.

THE
Journal of the American Medical Association.
PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 65 RANDOLPH STREET,
CHICAGO, ILLINOIS.

SATURDAY, AUGUST 21, 1886.

POISONS IN FOOD AND DRINK.

As it is fitting that the public should be made aware of the dangers that threaten health and life in food and drink, it is also fitting that such information should come from those who are not only entitled to speak with authority, but who are well known to the outside world. In the August number of *The Forum* is an article, by DR. CYRUS EDSON, of New York, on this subject in which sound ideas as to food and drink are plainly set forth, in language which anyone may understand. The American public is taking more interest in matters of public health each year. Articles on sanitary subjects in newspapers and magazines, sanitary conventions, more of them each year, and the American Public Health Association, and we should not forget to name also the various State and local Boards of Health which are becoming more numerous each year, have given a wonderful impulse to sanitary thought and procedures during the last two or three years. The public is beginning to learn that the necessary results of the neglect of sanitary laws cannot with justice be laid at the door of Providence.

In the article referred to Dr. Edson first deals with drinking water. "How rarely do we stop to consider before drinking a glassful whether it is pure or not? If it be clear and cold, we are satisfied." It would be well if every physician would closely investigate the sources of the drinking water supplied to his patients. Medicine may avail but little if the pig-stye be within a few feet of the well from which the water is obtained. "Given the conditions under which a well exists, it is no more necessary to analyze its water to ascertain its character than it is to analyze the air of a room connected directly with a city sewer to find out if it contains sewer gas. The depth of the well, whether it be walled or piped, the character of the substrata, the proximity of contaminating influences and their amount, are the only factors to be considered." From a consideration of water he passes to that of ice and ice supply. "The idea that water purifies itself by freezing is very prevalent and very deeply rooted. It has led to the use of ice from ponds, the water from which no one would think of drinking. It is true that a few of the solid contaminants may settle and be eliminated in freezing, but that water once polluted is thus rendered safe is a theory long since exploded. Degrees of cold sufficient to kill diseased germs are never experienced in temperate zones. The germs which caused the Plymouth outbreak of (typhoid fever) were shown to have been exposed for three days to a temperature of 20° Fahr." The ice supply should receive as close attention as the source of our drinking water.

Few people understand that it is more than swindling for a dealer, or anyone else, to adulterate milk with water, or that it is a matter of health to prevent any contamination whatever of milk. Not infrequently dealers and others make use of certain preservative salts to keep milk from souring in hot weather; such as borax, boracic and salicylic acids. These are irritating to the kidneys, and should never be used. The physician should exercise the utmost care as to the source of milk to be given to invalids and children, and he should make a personal inspection, if possible, of the cows furnishing them milk, and the manner in which they are treated and fed.

So much has been written of late concerning unwholesome meat that we may pass over the remarks on this subject. It is in the matter of sugar confectionery and jellies that the adulterator becomes an artist. Candies are adulterated to lessen the cost of the manufacture, as may be supposed, by the addition of substances which will diminish the strength without altering its appearance. The articles used for this purpose are terra alba, kaolin, starch, finely ground marble-dust, and pulverized asbestos. Adulterations in sugar confectionery are also used to improve the appearance, the coloring matters most frequently used being chrome yellow (lead chromates), Brunswick green (a mixture of chrome yellow and Prussian blue), red lead, Paris green, arsenical aniline, burnt umber, Venetian red (earths) vermilion (bisulphuret of mercury), and Prussian blue. After this the flavors are to be considered, these being made by distilling certain chemical salts with alcohol and sulphuric acid. One that is especially agreeable is

said to be obtained by treating rotten cheese with sulphuric acid and bichromate of potash. Much of the celebrated "rock and rye" and "rock and rye drops" is made of a preparation of sugar and fusel oil. "A most plausible current jelly, sold until a year ago by nearly every grocer and fruiterer, was made as follows: Dried apples, glucose, water, arsenical fuchsine (a red aniline pigment), tartaric acid, and glue. This mixture was boiled, strained, and sufficient salicylic acid added to keep it from spoiling in hot weather." There are very few of the fruit jellies sold now which are not frauds, though many of them are not dangerous to health. The apple does duty for almost every fruit, the other ingredients being glucose, water, color flavors, and gelatine.

With proper care in selecting canned fruit and vegetables there need be no danger unless the cans themselves are made of improper materials. Coffee and tea are adulterated. Almost all green teas are artificially colored; usually with Prussian blue, turmeric, or soapstone. Mustard is adulterated with terra alba and wheat flour, and then colored with turmeric, or a poisonous coal-tar preparation known as Marsh's yellow. Vermicelli is sometimes colored with chromate of lead instead of eggs or saffron. The notorious "egg powder" is a new name for chrome yellow or lead chromate. Even oleomargarine has been adulterated by the addition of gelatine to make it absorb water, and we can scarcely doubt that impure fats are used in its manufacture.

As regards our foods, then, there are two sources of danger: Accidental contamination, and wilful adulteration. To remedy the first much may be done by educating the public in sanitary science, in Hygiene, the rudiments of which should be taught in every public and private school, and the further principles studied in the higher schools and colleges. In this way the people will be brought to know that the second danger may be averted and avoided by laws defining adulterations and fixing punishments for offenders; and by the appointment of efficient boards of health to carry out the laws; for laws cannot enforce themselves.

DR. FRANK HASTINGS HAMILTON.

In the death of DR. HAMILTON, which took place on Wednesday, August 11, surgery loses one of its masters, and American medicine one of its greatest lights. About two years ago he was attacked with pulmonary hæmorrhages, but on account of a vigorous constitution he safely weathered that storm. Since that time, however, his health has gradually broken, and about three weeks ago he began to decline rapidly. He was born on September 10, 1813, in Wilmington, Vermont, and was therefore in the seventy-third year of his age. He was graduated from the University of Pennsylvania in 1833, having been a member of the medical profession for fifty-three years at the time of his death.

Since 1840 Dr. Hamilton has been known as a surgeon. Previous to 1844, when he removed to Buffalo, N. Y., he was Professor of Surgery in the Fairfield, N. Y., Medical School (1838), and a year later he was elected to the same chair in the Geneva, N. Y., Medical College, which position he held for almost four years. When he removed to Buffalo, in 1844, he became associated with the late Dr. Flint, and two years later they, with Dr. James Platt White, added a medical department to the University of Buffalo. Here Dr. Hamilton was Professor of Surgery for fourteen years, and in 1860 he removed to Brooklyn, where he was elected to the chair of Surgery in the Long Island College Hospital. He entered the Army as a surgeon in the early part of the Civil War, and was successively promoted to the ranks of Brigade-Surgeon and Medical Inspector of the U. S. Army. He was one of the founders of Bellevue Hospital Medical College, and occupied the chair of Surgery in it until 1875, when he resigned it.

Dr. Hamilton has contributed a very great deal to practical surgery and to surgical literature. His bone drill, apparatus for fractured jaw, compound Nélaton's probe, bullet forceps, bone forceps, serrated bone cutter, modified Liston's artery forceps, apparatus for double varus, hare-lip scissors, modification of Owen's tonsillotome, and his improvements and inventions in splints for fractures of the long bones are familiar to all surgeons. To him we are indebted for the use of gutta percha as splints, for the method of closing ulcers by transplantation of skin flaps, for a safe method of cutting the sternal portion of the sterno-mastoid muscle, for the operation of resection of hallux valgus, and for the generally accepted views concerning resection in compound dislocations of long bones. In plastic surgery he has contributed much; a method of operating from the forehead by turning the pedicle, and he was the first to operate from the palm of the hand.

In surgical literature his greatest works are his "Fractures and Dislocations," which is now in the seventh edition, and which has been translated into French and German; his 'Treatise on the Principles and Practice of Surgery," first issued in 1872, and now in the third edition; his "Prognosis in Frac-

tures;" "New Views on Provisional Callus," and a "Treatise on Military Surgery." Besides these he has from time to time contributed valuable articles to current medical literature. It will be remembered that he was one of the consulting surgeons in the case of President Garfield, at the special request of Mrs. Garfield; and that he was instrumental in having the valuable aid of Dr. D. Hayes Agnew. The public has probably forgotten the outrageous treatment of these eminent surgeons by the committee to which was referred the Garfield claims; that people who were nurses or positively detrimental to the case were treated as well and better than they.

Even the enemies of Dr. Hamilton, if he had any, must deplore the loss to American medicine caused by his death. There are few in any country with so fertile a brain and so skilful a hand; so cool, deliberate and careful in speech, action and opinion.

THE PNEUMATIC CABINET.

The "Pneumatic Cabinet" has now been freely discussed in the journals for more than a year. Its physical principles have been set forth, its therapeutic value tested and endorsed by careful workers. That it is a real addition to our therapeutic armamentarium there seems to be sufficient evidence to show. It has not been vaunted as a cure-all for multiple and widely different affections, nor have any claims been put forward which bear absurdity upon their face. The owners of the instrument assure the profession that it will be kept out of the hands of quacks, and that persons desiring to rent it (for it is not for sale) must have the endorsement of the Advisory Board—and so far as can be seen they have endeavored to choose not only respectable but eminent men on this Board—men who can be trusted. Yet the machine does not seem to come into general use. Representative medical men in New York and other cities have, on consultation, advised the manufacturers to cover the Cabinet by patents *owned by the Company*, and it is rented under a contract which confines its control to the original lessee, and applications for its use are referred to an advisory medical board, without whose signatures of approval no application will be granted. The advertisement states that Cabinets are now in operation in New York, Brooklyn, Boston, Albany, Troy, Chicago, Cincinnati, Jacksonville, and other large cities.

The rental of the Cabinet is $250 *per annum*. Let us estimate that each Cabinet costs the company $500, which seems a high estimate. That is an income of 50 per cent. on the capital invested. The lessee of the Cabinet has to pay too much for it, and so the Advisory Board should have pointed out. The high rental can effect nothing in the way of keeping it out of the hands of quacks and irresponsible parties, as that matter is in the hands of the Advisory Board. The Cabinet is practically out of the reach of men in small places; they cannot afford it, however necessary it may seem. And as a rule physicians, and people generally, are not partial to this method of doing business. No physician would wish to rent his pocket-case, his saddle-bags, hypodermatic syringe, speculum or obstetrical forceps, nor would he wish to pay the whole cost in two years' rental. As the case now stands only a very limited number of physicians can afford to have a Cabinet in the office. There is no good reason why a reputable physician should be denied the use of a Cabinet. It is a therapeutic agent, as is an electric battery. It requires no more tact or skill to use one intelligently than does an electric battery; but who would rent a $100 battery at $50 a year? If the owners of the Cabinet wish to keep it out of the hands of quacks by renting it let them reduce the rental. The medical profession will not willingly see any therapeutic agent of value limited to a few men. It by no means follows that a practitioner is incompetent to use a Cabinet because he cannot afford to rent one. The best locomotive engineer in Christendom may be unable to rent an engine for a month.

THE CHOLERA IN EUROPE.

The entire cholera mortality in Europe for four months and a half has been about 2,800, and there seems good reason to believe that it is dying out and will not spread to any considerable extent, though there is still time for further serious outbreaks before cold weather. A cablegram of August 16 states that the geographical area affected by cholera exhibits the capricious behavior of the disease. Thus, it is worse in Barletta, which is far away to the south, where the coast district between Monte Gargano and Brindisi is easily affected. Thence it makes a clear leap of 300 miles to Ravenna and Bologna, then turns northward, extending, though in a less virulent form, throughout Venetia, including the Island of Chioggia, and reaching as far east as Verona, and as far north as Castel Franco, at the foot of the Alps. It is a noteworthy fact that the places most seriously threatened lie in the centre or on the edge of marshy plains formed by the alluvial deposits of rivers or the silting of the sea, which always induce more or less malaria at this season of the year.

SOCIETY PROCEEDINGS.

CHICAGO MEDICAL SOCIETY.

Stated Meeting, August 2, 1886.

E. J. DOERING, M.D., PRESIDENT, IN THE CHAIR.

OFFICIAL REPORT.

DR. L. L. MCARTHUR read a paper on

DIAGNOSIS AND TREATMENT OF HEPATIC ABSCESS.

Dr. McArthur divided the causes for abscess of the liver into intrinsic, or causes resident in the liver, and extrinsic, or causes external to and independent of the gland. To the former belong acute congestions, (said to result from heat and cold) tumors, echinococci, biliary calculi, or lumbrici in bile ducts. To the latter, infective emboli, whether carried through the portal vein or hepatic artery, traumatisms, use of alcoholics in excess, high temperatures, surgical operations or lesions anywhere in tract of vena porta or its communications. All abscesses may be divided into idiopathic, infective or embolic and traumatic, in the order of their frequency respectively. First variety most frequently met with in tropics, and hitherto supposed to be due to high temperature irrespective of pathological conditions. Dr. McArthur believes them to be due generally to formation of biliary calculi. Most frequent abscess in this zone is the infective variety. Sources of infection are two: *Per arteriam hepaticum* and *per venam portæ*. First arise most frequently in pyæmia. Aseptic surgery has lessened the number of these cases. We can readily see how abscess of the liver may ensue by infecting particles reaching the liver when we remember all blood of the abdominal organs is returned to the general circulation via the liver. Hence, dysentery, ulcerations of the intestines, operations about anus and rectum, cystotomy, may cause abscess of the liver. Dysentery complicated the four cases he reported. The last variety of abscess, traumatic, comes from direct or indirect violence. The pain in abscess of the liver is severe according to the size of the abscess, its location in the liver, deeply seated or near the peritoneum, the amount of other tissues involved, lungs, stomach, pleura, etc., and its causation. When deeply seated may be symptoms only of "pus somewhere," chills, fever, sweating, etc., with general malaise. Locally, generally sense of weight and uneasiness on jolting. Tenderness variable, usually increase in hepatic area, and bulging of side. Temperature not often high, except when peritonitis; then present an important symptom, a peritoneal friction sound. This is hardly mentioned in literature, and yet is worthy of remembrance. Care should be taken to differentiate between pleurisy, or pneumonia of right lower lobe and hepatic abscess opening in this direction. Surgical interference by Volkmann's or Grave's method should be made as soon as possible. In the following cases two were operated upon and recovered; in the third the expectant treatment was followed and death ensued; in the fourth case a diagnosis was not made because of absence of characteristic symptoms.

On concluding his paper Dr. McArthur gave the following verbal report of cases: The first case was a man, 35 years old, formerly strong and healthy, weighing 160 pounds, a roustabout. Family history good. Four years previous to coming under my observation, while in Louisana, he had had hepatitis with enlarged liver, from malaria. He was engaged when taken in present illness in unloading a cargo of peaches. He ate freely of them, and an acute diarrhœa ensued, which became dysenteric in character. One week prior to admission to the hospital he complained of pain in the hepatic area. At the time of his admission his general nutrition was good, tem. 103, complained of tenderness in the hepatic area, had diarrhœa. On making an examination I found the hepatic area enlarged, with tenderness over it, slight redness of the integument over the right lobe of the liver. On completing the auscultation of the lungs I placed my stethoscope over the liver and heard a very distinct friction sound which characterized the invasion of the peritoneum by inflammation. Three days later a hypodermic syringe was introduced into the liver and pus, and a sero-purulent fluid withdrawn, and the diagnosis of abscess of the liver was completed. As soon as the friction sound had ceased, that is, when adhesion had taken place, an operation was performed by making an incision about two inches in length and carefully dividing the tissues until the peritoneum was reached and the adhesions found; when the abscess was opened, the contents evacuated and a drainage tube inserted. The man was discharged cured in the course of forty-two days. The second case was a man formerly in good health; family history good. He came to the hospital complaining of fever, disagreeable taste in the mouth, pain in the right shoulder and down the back. Normal heart and lung sounds, except on the right side, where their was evidence of commencing pneumonia in the right lower lobe. Marked enlargement of liver in the right hepatic area. In this case the attending physician advised the expectant treatment, hoping that the suspected abscess would open through the lungs, and a cure be effected in that way. In ten days the man died and a large abscess was found in the liver filled with normally appearing pus, complicated by circumscribed pneumonia and diaphragmatic pleurisy, showing the efforts of nature to get rid of the pus in a natural way. The third case was one in which the abscess was deeply situated in the liver substance. There was no local tenderness, no enlargement of the liver, only the sensation of pus somewhere, with rigors, fever, chills and sweating. There had also been a diarrhœa. He finally succumbed to blood poisoning. Post-mortem showed an abscess in liver. The fourth case was in St. Luke's Hospital, and was operated upon and recovered.

DR. FRANK BILLINGS upon invitation said: I probably have had less experience with living patients with abscess of the liver than any one present, and consequently have less that is practical to say about it. While in Vienna I saw a great number of autopsies of abscesses of the liver. Several cases occurred in the

wards, but no diagnosis of abscess was made, the patients suffering from what appeared to be intermittent fever, and usually a diagnosis of that kind was made. A curious thing to me was the fact that a great number of these abscesses were found in new born children. In Vienna, one often sees in the dead-house abscesses which were the result of badly attended cord. The pus had formed in the vein and the inflammation spread upward, finally producing abscess in the liver.

Dr. H. A. Johnson said: While listening to this paper, a somewhat unusual case was recalled to my mind which occurred in the County Hospital when we were down on 18th street. This was a case of abscess in the left lobe of the liver which had communicated, evidently some time before death, with the left lung, and was discharged through the bronchus, When the case came into the hospital it presented all the signs of empyema, and the complication of the abscess with the liver was only discovered in the dead-house. Another case occurs to me in which there was abscess in the right lobe of the liver discharging through the right lung. The patient recovered, but five or six years after a recurrence of the abscess took place, and it discharged into the vena cava, producing instant death. Post-mortem revealed the cavity of the abscess communicating with the vena cava. Both of these cases seemed to me to be somewhat out of the history of abscesses.

Dr. J. J. M. Angear said: In all cases that I have seen the discharge had a fearful odor, and I began to think that if the pus did not have that odor, I should have doubts of its being an abscess of the liver.

Dr. J. A. Robison said: I have just had in the County Hospital a case of abscess of the liver in which the diagnosis was made only after death. The remark of Dr. Billings, that abscess of the liver is often diagnosticated as malaria, leads me to speak of it. The case was that of a woman who had been ill for several months. When I first saw her in the Hospital about a month ago, she was greatly emaciated, jaundiced, and complaining a great deal of pain in the hypogastric region. The liver was not enlarged, temperature ranged from 100 to 102, she had chills every few days, and it was supposed they were due to malaria. She finally died of exhaustion.

There was no diarrhœa, but there was great tenderness over the hypogastric region together with general jaundice. There was also a cachectic appearance which led me to believe there might be catarrhal inflammation of the duodenum which would account for the jaundice. But upon post-mortem examination it was found to be a case of multiple abscesses of the liver, with purulent inflammation of the gall ducts. I have in the hospital another case in which nearly all the signs that Dr. McArthur has spoken of here occurred. The patient is a woman about 40 years of age, in whom the area of liver dulness is greatly increased. Temperature 100, extremely jaundiced, and when she first came into the hospital I heard the friction sound as mentioned in the paper, but that has now disappeared. Since hearing this paper I am led to believe we will find a large abscess of the liver in this case.

Dr. John Bartlett said: At the time of the Mexican War, many of the soldiers returned affected with chronic diarrhœa. In seven of these cases which came under my observation, enormous abscesses of the liver followed. They were not opened, but were particularly examined in the dead-room, some of them containing at least a gallon of pus. As a general rule the patients lived for months. About a year ago I was called to see a case in consultation. The man had been tread upon in a crowd and received a slight injury about the epigastrium. Inflammation followed and abscess of the liver was diagnosticated, but owing to a difference of opinion among the consultants no effort was made even to aspirate. After death, which followed in due course, multiple abscesses were found, one as large as a small cocoanut, another as large as an orange, and fifty other smaller ones. I mention this to prove how hopeless would have been an attempt to improve the condition of this man by aspiration. I saw another case of some interest: The man was shot and some weeks afterward died. I opened the body and found a piece of wadding and the bullet in the liver. The abscess was about as large as two fists and opened into the vena porta. In another case I was called in consultation to see a man who appeared to have an affection of the liver. Both of the attending physicians thought it was a case of abscess. Presently he had symptoms indicating that there was some difficulty in the respiratory organs, and later, but in time to act if we had been more prompt, we discovered that there was a retro-pharyngeal abscess. I immediately expressed the opinion that the abscess in the liver had opened into the anterior mediastinum. I deemed it inexpedient to open this abscess without having other instruments than we had with us. We went to get these, and when we returned we were advised at the gate that the man had been taken with a difficulty of breathing which simulated croup and had immediately expired. Upon examination we found that he had been drowned, as it were, by the pus from the bursting of this large abscess.

Dr. H. N. Moyer asked Dr. McArthur if in the literature on the subject he had seen anything in reference to the presence of acetone in these cases? Jaffey has laid down indications of diagnostic value when this substance is formed. He thought the symptoms might lead to the development of this substance in the urine, and that it might be of some diagnostic value, in suspected cases of abscess of the liver.

Dr. L. L. McArthur said, in closing the discussion, I was interested to learn of another source of abscess of the liver to be by infection from the umbilical cord as related by Dr. Billings. Dr. Johnson's case of abscess of the liver breaking into the left pleura and left lung is the only one I have known of. Rupture into the vena cava is also rare. To Dr. Angear I would say that in the cases I saw the discharge was odorless, and I emphasized that fact in the paper because the books all state that as a rule it possesses a very offensive odor, and is usually of a purulent character. In two of the cases I saw it was of a chocolate color being mixed with blood and liver-

tissue. Dr. Robison speaks of a case as markedly jaundiced. This is set down as an exceedingly rare complication in abscess of the liver. He said that in his case the liver was found in post-mortem to contain multiple abscesses, I would like to ask if the cause was found? (Dr. Robison: We found no cause.) I would ask Dr. Bartlett if his case proved to be a case of abscess of liver with a mediastinal opening? (Dr. Bartlett: We presumed it to be hepatic, but no post-mortem was allowed). As to acetone, I have seen no literature on the subject in connection with the liver. In those cases in which I used the hypodermic needle to make a diagnosis (three in number) two were operated on and recovered, the third was treated by the expectant treatment and died. No careful search was made for the puncture of the needle in the abscess of the liver. After the first two cases I became bold in the use of the hypodermic needle and punctured for the fourth time in one case before I obtained purulent matter.

DR. SCOTT HELM read a paper entitled

A SUBCUTANEOUS METHOD OF THE TREATMENT OF BUBOES, WITH EXHIBITION OF THE INJECTING INSTRUMENT.

His method consists in injecting the suppurating gland, after the pus is withdrawn, with a solution of carbolic acid to wash out the cavity, and then injecting and allowing to remain an emulsion of iodol in pure oleic acid. The injecting instrument consists of a barrel holding two drams, which is mounted on either side by two rings for the fore and middle fingers, and a ring in the end of the piston for the thumb. Three needles, two different sizes of aspirator needles, and one a canula with trocar. To these is attached the centre joint, in which is a stopcock, the opposite extremity of which is attached by a smooth joint to the barrel. In twenty-three cases the treatment was successful in all but the nineteenth, this patient having gone on a protracted spree following the operation. The advantages of the operation are that when there are two or more suppurating buboes in the same chain of lymphatics, the second or third appear further away from the initial one; by placing the first glandular abscess in a perfectly aseptic condition you prevent the inflammations of neighboring glands; secondly, there is no cicatrix remaining.

DR. J. ZEISLER: If conservative surgery has any place I think it is in the treatment of buboes, and I think the final bad result of treating buboes by section might be avoided by carrying out the idea of Dr. Helm. It is a good idea to inject iodol as it may be regarded as a specific against the venereal poisons, and their can be hardly a doubt that the suppuration is due generally to the poisons. I would like to know if the doctor has found it sufficient to introduce this iodol emulsion more than once?

DR. G. C. PAOLI said: In the treatment of buboes of course the sooner we get out the pus the better, but those who have had experience with the treatment of buboes know that there are cases in which, in spite of aspirations and subcutaneous injections there is still a morbid process going on which produces mischief and ulcerations of the tissues. I never use carbolic acid, but I have used a watery solution of permanganate of potash, ½ gr. to 6 ounces, injecting it into the cavity. But we all know that we have cases of buboes which in spite of all the skill of the physician produce the greatest suffering. I saw a case where the femoral artery had to be ligated. In temperate persons we have very tedious buboes. Again, where mercury has been used too freely there are often mischievious buboes. Very difficult cases are those in business men who are busy, active, and produce more congestion of the abscesses by their activity. But if we can get the patient to go to bed and rest we succeed better in our treatment. However, I think favorably of the subcutaneous method.

DR. FRANK asked Dr. Helm how many of these buboes were due to gonorrhœa and how many to chancres or chancroids, if any?

DR. H. N. PIERCE said: I had the pleasure of seeing Agnew, Jr., four years ago experiment with the subcutaneous treatment of buboes. He first evacuated the pus by use of the canula, then injected an antiseptic solution, washing it out and afterwards applying a compress bandage. The buboes generally went on from bad to worse, and he tried the same method over again but with no success, and finally he had to cut down upon them and treat them by the old method.

DR. SCOTT HELM in closing the discussion said: I have made, in any case, only one injection, and the time that has elapsed before the patient was discharged has been from eight to fourteen days. In reply to Dr. Feder I would say that these buboes have been aspirated as early as possible, as soon as there was fluctuation. All the pus was removed and the cavity injected with a like quantity of the oleic acid emulsion of iodoform. I have had no case in which there has been a return of the disease in the same chain of glands. I had one case in which there was a bubo appeared some two weeks afterward in the opposite groin, evidently due to gonorrhœa. In the second case, and the last one, which only occurred a few days ago and was not reported, the buboes were caused by gonorrhœa, all the others were due to chancroids.

IN MEMORIAM.

Mr. President: Since our last meeting it has pleased Divine Providence to call from our midst Dr. Robert C. Hamill. The Committee on Necrology respectfully submit the following resolutions:

Resolved, that this Society has learned with profound sorrow of the death of Dr. Hamill, one of the earlier as well as one of the most earnest and efficient members of this Society.

Resolved, that in the death of Dr. Hamill this Society has lost a member typical of the true gentleman in the kindness of his manner, in the great force and energy of his character; typical of the good citizen in his ceaseless efforts to advance the interests of institutions tending to ameliorate the condition of the sick and unfortunate; typical of the patriot in his unceasing efforts to aid and cherish the disabled soldiery of his country; typical of the wise counsellor in the soundness of his judgments; typical of the

true physician in his earnest cultivation of medical knowledge and in his philanthropic practice of the healing art; typical of the faithful Christian in his never flagging zeal in all good works.

Resolved, that the Society extend to the bereaved widow of the deceased in her great loss, sympathy and condolence.

JOHN BARTLETT,
CHAS. GILMAN SMITH,
H. A. JOHNSON
Committee on Necrology.

CHICAGO GYNÆCOLOGICAL SOCIETY.

Forty-Seventh Regular Meeting, Friday Evening, May 28, 1886.

THE PRESIDENT, DANIEL T. NELSON, M.D., IN THE CHAIR.

W. W. JAGGARD, M.D., EDITOR.

(*Concluded from page 191.*)

The PRESIDENT exhibited specimens removed from

A CASE OF SUPERNUMERARY DIGITS.

While I know the condition is not exceedingly rare, I thought the specimen was so beautiful as to be worthy of presentation to the Society. The specimen consists simply of two supernumerary little fingers, which I found in a beautiful, healthy baby just after it was born, attached by small pedicles, consisting simply of the skin and the vessels needed to supply them, about the middle of the first phalanx of the little finger; the pedicles were perhaps one-sixteenth of an inch in length, just long enough to ligature. They look like little beans; the finger nails are fairly developed in both. They were very vascular. They looked, before removal, like bangles. This was the sixth pregnancy; the other children were all perfect; no other case of this condition in the family that is known. The condition is usually hereditary. In one there is a very good nail formed, upon the other there is only a slight nail. The mother is in good vigor and health. They were united to the larger little finger about the middle of the first phalanx—one was just about the middle of the phalanx, on the outer border; the other half way between the middle line and the outer border. They both feel as if there are bones in them—two phalanges in each, the third being represented by the pedicle.

DR. CHARLES T. PARKES, (Rush Medical College, 1868,) read a paper entitled

UTERINE FIBROIDS TREATED BY THE FLUID EXTRACT OF ERGOT.

My intention is to relate to you the history of four cases of uterine tumor, and to present a few remarks suggested by them. These four cases were treated by the internal administration of Squibb's fluid extract of ergot. They all resulted in recovery by expulsion of the growth.

I found no insurmountable difficulty in giving the medicine, although when given for a prolonged period it creates nausea and disgust in some. This was counteracted, and the pain following its use controlled by combining it with morphine. It seemed to me preferable to the hypodermatic use—the latter being locally painful and often producing abscess, besides it is not followed by any better result. Two of the cases, treated by ergot, when thrown off, proved to be pure uterine fibroma—dense and hard—white and glistening when cut open—consisting of simple fibrous tissue. The other two following the action of ergot were soft myomata—pultaceous and semi-elastic—consisting mostly of connective tissue, confirming the diagnosis made. All four of these were evidently submucous tumors, or so slightly interstitial as to be practically covered only by mucous membrane.

CASE I.—Mrs. S., American, 43 years old, widow, three children, no miscarriages, menstruated first when 16 years old. Never had any noticeable trouble with menstruation until three years previous to my first examination; during these years she had suffered with irregular profuse hæmorrhages which were now continuous, accompanied with exacerbations on the slightest exertion. My first examination was made February 20th, 1876. As my memory brings this patient before me she presented the most perfect example of transparent flesh that I had ever seen. A large, finely formed woman, her flesh looked like alabaster, apparently destitute of blood. The legs were œdematous, the heart beat feeble and rapid, and the slightest exertion was followed by extreme palpitation and the most fearful feelings of suffocation. Her answer as to what she had done for her trouble was that she had taken "quarts of medicine." Vaginal examination revealed an enlarged uterus and patulous os, from which blood was rather freely oozing. The sound entered the uterus about five inches, the handle being deviated forwards and to the left side. A diagnosis of submucous uterine fibroid was made.

The treatment adopted was the administration of strychnia and iron, together with wine and good diet for the general condition, and one-half drachm doses Squibb's fluid extract of ergot every six hours, to either expel or kill the growth. Locally, to stay the hæmorrhage, a small tampon of pulverized alum was applied to the *os uteri* and held in position by ordinary cotton tampons.

The first forty-eight hours' use of the ergot produced quite serious uterine pains, so acute that the patient in her weakened condition said they were unbearable. At this visit Professor T. D. Fitch was with me in consultation. The tampon of alum was removed, and Dr. Fitch's examination confirmed the diagnosis made, and advised the continuation of the treatment. As the bleeding had been entirely controlled by the tamponade, it was left out. The ergot was continued as before, and a sufficient dosage of morphine ordered, to make the pains bearable if they persisted. No further use of the tampon was required, the uterine contractions never ceased while the ergot was administered. On the six h day of its use a foul-smelling serous discharge came on *per vagi-*

nam, accompanied with slight general chilliness, and a temperature of 102° F. The patient was assured that the tumor was surely coming away, and encouraged to bear "yet awhile" with her great suffering. On the eighth day the tumor was found in the vagina and removed. It was about the size of a duck's egg and very hard to the touch. After a short period of mild septic trouble the patient passed through a quick convalescence and rapidly recovered. Save a few months ago she says she has never had any illness since getting rid of this growth, and certainly looks well.

CASE II.—Mrs. P., German, married, five children, no miscarriages, menstruation began at 14, now 37 years old. Seen by myself first in March, 1881. The patient is a robust, hearty woman. Never had any trouble until six months after the birth of last child, about one year ago, when she began to flow too freely and too often—as often as every week or occasionally twice a week. The blood was in large quantity and bright red in color.

The examination revealed an enlarged uterus—it could be felt above the pubis during bimanual examination. The sound entered easily for five inches, the handle deviating forward and to the left. Its use was accompanied and followed by very free bleeding.

Diagnosis.—Submucous uterine fibroid on anterior wall. *Treatment.*—Locally the alum tampon was used as in the previous case. Squibb's fluid extract of ergot in half-drachm doses every six hours. The patient was ordered to remain in bed. On the succeeding day all the tampon, except the alum, was removed. No hæmorrhage; slight pains complained of. On the second day the pains were very severe and morphine was given to control them. The alum tampon was removed and a carbolized hot water injection ordered three times a day. On the third day pains still severe and a foul-smelling vaginal discharge commencing.

This condition persisted until during the night of the eighth day, when I was summoned to the patient on account of the unusual severity of her sufferings, the messenger, her husband, saying it was just as if she were having a baby. On my arrival the pains had quite ceased. Examination showed the loss of considerable blood, and the vagina was found filled with a large fleshy mass, horribly offensive. The finger could be passed beyond it, and the largely opened cervix recognized. It was seized with a Vulsellum forceps, twisted a few times upon itself, and then delivered. The mass was as large as a closed fist, dark colored and ragged all over its surface and very foul-smelling. The patient rapidly regained her usual health, and is well to-day.

CASE III.—Mrs. E., 33 years old, married, three children living, one miscarriage, menstruation commenced when 14 years of age. Was first called to visit her January 2, 1885, for severe uterine hæmorrhage. She then informed me that she never had any menstrual trouble until about two years previous.

Shortly thereafter she was operated upon for laceration of the cervix, without much relief to her trouble, since she had gradually grown worse, so that she was not free from bleeding ten days in the month.

One year previous to my seeing her, the uterus was freely curretted and fuming nitric acid applied to the cavity as a relief to the bleeding. The procedure failed in any good result.

At this visit the bleeding was extreme in degree. Examination revealed the pelvis largely filled with a smooth, doughy mass. After considerable searching the *os uteri* was found high up above and close to the pubis. It could only be found by crowding the finger between the bone and the growth. The growth was exquisitely tender to the touch or any manipulation. Bimanual palpation discovered an uncertain mass above the pubis. The vagina was tamponed temporarily, and morphine administered hypodermatically. The diagnosis was reserved. In my mind it rested between hæmatocele and soft myoma. The tumor was compressible, at least its elements seemed to give way to the pressure of the finger; it was semi-elastic and painful under manipulation, filled the entire posterior half of the pelvis, and the os was carried well upward and forward. It might be and probably was, a myoma of the posterior uterine wall retroverted.

A few weeks ago I had the satisfaction of seeing the *fac simile* of this case, so far as the character of displacement and the position of the tumor was concerned, in a patient under the care of Dr. Merriman, although the tumor in Dr. Merriman's case was much harder and more resistant.

Dr. Merriman, with skill and apparently with ease, lifted the tumor out of the pelvis into the general abdominal cavity, after placing the woman in the knee-elbow position—a change bringing much comfort to the patient. I learn that under the use of ergot the growth is already diminishing in size.

The patient was put upon fluid extract of ergot in one-half drachm doses three times a day. The next menstrual period showed no change other than a diminished loss of blood. In June the flooding was quite free and accompanied with considerable pain. In July everything was as bad as possible, with so much pain that the ergot was discontinued. Repeated examination now narrowed the diagnosis down to soft myoma. The removal of the uterine appendages was suggested, in the hope that this procedure would anticipate the menopause, stop the bleeding, and lead to the gradual atrophy of the growth. In September, consultation was solicited with Professor W. H. Byford, when the patient was etherized and carefully examined. The sound, introduced with great difficulty, owing to the displaced position of the os, passed in over five inches, positively demonstrating the nature of the growth, its consistency showing it to be the soft variety of myoma.

As the patient could not be said to be in absolute danger of her life, the operation was refused by her friends, although the sufferer was willing enough to have it done. The previous treatment was endorsed by Professor Byford, and its continuance advised. The fluid extract of ergot was resumed and rendered bearable by morphine.

The October illness was accompanied by slight hæmorrhage, but excessive pain. The uterine contractions continued on after the menstruation ceased,

until during the last week of October, they became labor-like in character. Examination now revealed that the uterus had righted itself, the os was becoming patulous and its edges thinned out; through its opening the projecting tumor could be felt. On the second day of November, pieces of the broken-down mass, horribly offensive, could be seized with the forceps, pulled out of the uterus and cut away.

Chilly sensations began to be felt by the patient, sweating came on, the temperature ran up to 101° F., and a mild septicæmia was established. During the following week the pains never ceased. Quinia was administered freely. The vagina and uterus were irrigated with hot carbolized injections, and the mass removed as fast as any of it, could be reached, and at the week's end the last remnant was gotten away. The patient was very much reduced physically, but rapidly convalesced, and is now perfectly well, with her menstruation normally reëstablished. Fully a quart of soft pultaceous pieces of the growth were removed.

Case IV.—Mrs. L., German, 34 years old, one child, was seen first November 1885. She had been suffering with increased menstrual flow for a year. She came to me to be treated for an external, painful, labial swelling. It proved to be a vulvo-vaginal abscess. It was opened freely and gave no further trouble. A uterine tumor was noticed and examined. It was found to be of considerable size—could be detected above the pubis.

She was put upon one-half drachm doses of fluid extract of ergot every six hours.

This she continued for six months steadily, with varying conditions of pain and hæmorrhage, until in April, 1886, the hæmorrhage ceased, pain became very severe, and a shreddy, foul-smelling discharge manifested itself. She was removed to the St. Joseph's Hospital, and after ten days of antiseptic washings and removal of masses of broken-down tissue, the mass was entirely extruded. This patient had also quite a severe septicæmia, but finally recovered and is now well.

Remarks.—Aside from crucial demonstration, it seems reasonable to assert that these four cases were cured by means of the remedy used, and by that alone. It is well known that the most of authorities state that no positive reliance can be placed on the use of ergot. My experience, surely, as here illustrated, and confirmed by other cases seen, leads me to think that this adverse judgment must be qualified, especially in the treatment of the submucous bleeding fibroids of the uterus. If the growths be partially interstitial, the less the thickness of uterine tissue between them and the mucous covering, the more certain will the remedy be curative. Of course it will be impossible to demonstrate the exact amount of uterine wall forced contractions will destroy, hence a trial of its worth is desirable in all cases not purely sub-peritoneal and pedunculated. Still I am quite convinced the severity of the hæmorrhage gives one a good reason to speak *positively* of the results to be accomplished by its use. I have not deemed it necessary to look up the history of the first use of this remedy for stimulating uterine contractions. It is sufficient for me to say that my confidence in the remedy and persistence in its use, even when failure of good results seemed certain, has followed directly as the result of the teachings and experience of an honored Fellow of this Society, Professor Wm. H. Byford, who has never lost an opportunity to urge upon the profession his belief in the specific action of the remedy, and its absolute certainty of cure in many cases. I am quite sure that Professor Byford deserves the credit of being the first to make use of ergot with the idea of destroying the vitality of the growth, and as well, causing its expulsion from the uterus.

The third case shows plainly how absolutely unnecessary any operation would have been. The removal of the appendages might have stopped the hæmorrhage, but such a perfect cure as now exists could never have followed operation, to say nothing of the harm done by unsexing the woman; still no case could present better reasons for such a procedure, none in which it would have been more justifiable from the indications present. To me it brings the lesson to make oöphorectomy the *dernièr ressort* in all cases, certainly to give the remedy used at least a six months' trial without result before operation be sanctioned.

The difficulties attending the differentiation between a sack of fluid and the soft myomata was well illustrated by this case. The sensation communicated to the touch was scarcely distinguishable from fluctuation. It was only after repeated examinations under ether, and the use of the sound, that the diagnosis was satisfactorily settled.

The fourth case for a time seemed one in which the treatment would come to nothing. Every one became discouraged. The suffering was increased, and no advance was made, apparently. By persistence the cure was accomplished. In this case operative interference was solicited by the patient, and would have been most readily submitted to, without any urging. If I read aright the indications which authorities give to justify the resort to removal of the uterine appendages, they were all present in this case, and more too if that were needed. Certainly the final result has proven that any such interference would have been uncalled for and lamentable.

I am quite well aware that four cases cannot be considered absolutely demonstrative of any rule; still these four increase the number already published in proof of the curative action of ergot, administered thoroughly, for submucous uterine growths. It is impossible for me to understand how some good authorities can still assert their disbelief in ergot; in fact, calling it the most inert and disappointing of all drugs. No possible argument can disabuse my mind of the belief that its action was positive and certain in the cases related. No law has yet been evolved fixing even by approximation the period of time required for the effects of the medicine to show themselves. The idiosyncrasies of the patient, the thickness of the uterine envelope, the distance from the mucous membrane, the purity of the drug, and many other conditions, render it scarcely possible that any

such law can ever be laid down. The trial should be made patiently and persistently, just so long as the patient's condition will warrant its continuance, and a complete expulsion of the growth, followed by rapid recovery, will be the reward.

DR. F. E. WAXHAM read the following paper, entitled:

OCCLUSION OF THE OS UTERI AS AN IMPEDIMENT TO LABOR, WITH A REPORT OF TWO CASES.

Having met with occlusion of the os but once in several hundred cases of labor, and knowing of a number of physicians of extensive practice who have never seen this condition present at the time of confinement, I am convinced that it must be of rare occurrence, and the history of two cases may not be uninteresting.

Mrs. S., primipara, 29 years old, German, fell in labor about 9 P.M., February 21, 1885. The membranes ruptured soon after the commencement of labor and the amniotic fluid gradually drained away.

The patient was seen between 3 and 4 A.M., at which time the pains had become very severe and frequent. Upon examination the head was found low down in the inferior strait, almost presenting at the vulva, and covered apparently by a thin membrane through which the advancing head threatened to burst with every pain. Upon the most careful digital examination no os could be discovered, nor the slightest indication of one. Professor Nelson was summoned and promptly responded. His more experienced finger detected a very slight dimple in the centre of the presenting tissues. By keeping the finger upon this slightly thickened tissue, he discovered that it became very much thinner with every pain, while as the pain subsided the tissue assumed a very slightly umbilicated appearance. By firm and continued pressure upon this suspicious spot an opening was at length effected and the os gradually dilated. As the labor proceeded slowly, and fearing the result to the child of so long a delay of the head in the pelvis, and the os being fully dilated, the forceps were applied. The child was delivered without injury to the mother, but it was asphyxiated and required considerable effort in resuscitation. Professor Nelson stated that this was the second case that had ever come under his observation, and kindly gave me the history of the following one: He was called to attend a lady in her first confinement, a Swede, 23 years old, and married about one year. Making a hasty examination, he found a well-formed cervix but did not detect the os. On returning a few hours later, the head had descended to the inferior strait and was indeed presenting at the vulva and covered by the cervix, which had become so thin as to resemble the membranes. The membranes had already ruptured and the amniotic fluid had gradually escaped. There was no appearance whatever of the os. It could not be detected with the finger, and the head seemed about to burst through the uterine tissue. The patient was placed before a window, the labia separated and careful search made for the os. Only after a most careful search was it found. It was patulous only to the extent of admitting the very finest surgeon's probe. After this had been introeuced and worked about a second probe was passed, and by separating them the os was gradually and sufficiently dilated to allow the finger to enter. The os was then rapidly dilated and labor progressed normally.

I find the literature on this subject quite meagre, many of our writers on obstetrics omitting the subject entirely, while others refer to it very briefly.

Schroeder alludes to it in the following terms:

"As complete atresia of the os prevents conception, it follows that an occlusion of the os, observed in labor, must have taken place during pregnancy.

"Very frequently there is a superficial and easily separable agglutination of the external os. It is due to an inflammatory process of the lips of the os from a previous blenorrhœa. During labor the advancing head is seen to push the lower uterine segment forward to the outlet, and to thin it more and more. This thinning may be so great that the head appears to be covered only by the membranes. By an accurate examination the os feels like a small and soft dimple directed greatly backwards. If during a pain the finger or uterine sound be forcibly pressed against the dimple, the agglutination of the os will suddenly give way. The os itself now very rapidly dilates and labor proceeds without impediment. Often the pains themselves succeed in breaking down the adhesions of the os.

"It very rarely happens that the os only partially dilates after the agglutination has been torn through and remains rigid so as to later require incisions. There is very seldom so firm an adhesion between the maternal and fœtal membranes in the immediate vicinity of the internal os that the lower uterine segment cannot retract over the ovum. Separation by the finger or rupture of the membranes renders possible the dilation of the os."

Schroeder also refers to the fact that a firm cicatricial band may occasionally occlude the os, resulting from inflammation of the cervix or cauterization:

"When these firm adhesive bands prevent dilatation of the os there is danger of rupture of the vault of the vagina unless incisions are made and assistance given. The cicatricial closure of the os is frequently incomplete; more or less fine openings remaining pervious, rendering conception difficult but still possible, is believed by Schroeder to frequently result from ulcerative inflammation during the lying-in state."

Leishman, in discussing this subject, remarks that

"There are some cases in which there seems to be actual occlusion of the os. Impregnation in the case of an absolutely occluded os is as impossible as that the normal function of menstruation should be carried on, and therefore we must assume, in such cases, that the closure must have taken place subsequently to the entrance of the seminal fluid. It is of course possible that the os may remain open to a very limited extent, and yet the state of the tissues renders distension impossible, so as to practically constitute an impediment as insurmountable as actual occlusion would be."

Playfair mentions this condition as follows:

"Agglutination of the margin of the os uteri is occasionally met with and must of course occurred after conception. It is generally the result of some inflammatory affection of the cervix during the early months of pregnancy. Usually it is not associated with any rigidity or hardness, but the entire cervix is stretched over the presenting part and forms a smooth covering in which the os exists only as a small dimple, and may be very difficult to detect at all. Occlusion of the os from inflammatory changes sometimes so alters the cervix that no sign of the original opening can be discovered."

All our authorities agree that the occlusion of the os is the result of inflammatory change occurring subsequent to impregnation. It is a noteworthy fact that in both these cases the membranes ruptured and the amniotic fluid escaped in the very early stages of labor, showing that the membranes were adherent to the uterine tissue about the internal os. As the internal os dilated, rupture of the adhesions and of the membranes necessarily followed.

The discussion of the papers read by Drs. Parkes and Waxham was, on motion, deferred until the June meeting.

Mr. Lawson Tait, of Birmingham, and Dr. T. Gaillard Thomas, of New York, were elected Honorary Fellows of the Society.

Dr. E. C. Dudley proposed for honorary fellowship Protheroe Smith, M.D., M.R.C.P., of London.

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Stated Meeting, April 21, 1886.

THE PRESIDENT, C. H. A. KLEINSCHMIDT, M.D., IN THE CHAIR.

DR. J. TABER JOHNSON presented a

CYST OF THE BROAD LIGAMENT,

which he had removed that day. The following is a brief history of the case:

Mrs. T., white, a widow, never pregnant, aged 32, first noticed that she had a tumor growing low down in her left side, last June, just eleven months ago. It gave her considerable pain, especially in her bladder, and caused her to pass water frequently. She began to be irregular in her periods, missing at one time as many as four months. Her appetite and digestion became impaired, and she lost flesh rapidly. She became nervous and apprehensive, and lost much sleep. Her face was thin, careworn, and presented the characteristic "facies ovariana" to a marked degree.

She was sent to him by Dr. N. S. Lincoln. She presented the appearance of a woman eight months pregnant. Upon examination Dr. Johnson diagnosed a cystic tumor, and said it was probably ovarian, but declined to say positively until after the operation, which he advised should be made at once.

Dr. Lincoln and the patient agreeing with this view, he appointed the next Wednesday for the operation. As Mrs. T. declined to go to an hospital, her house was made as aseptic as possible, and the tumor was removed on the April 21, with the assistance of Drs. Cutts, Brownell, and Cuthbert.

Dr. Lincoln was present and kindly approved of the various steps of the operation. The cyst and its contents weighed eight pounds. After being emptied of its contents is was removed through an incision not more than three inches in length. There were no adhesions; the pedicle was unusually broad; it was transfixed and tied in two divisions, and burned off with the thermo-cautery. The ovary was found to lie upon the surface of the cyst, and was attached to it by a broad membranous band.

P. S May 5.—The patient is doing well; the wound healed by first intention, and she is sitting up.

In accordance with the resolution requesting CAPTAIN SYMONS, U. S. A., to present his

METHOD OF FILTERING THE CITY WATER SUPPLY,

passed at the last meeting, the Captain kindly appeared before the Society and read a paper, of which the following is an abstract: He said that complaints of the condition of the water were frequent, especially among the new-comers to the city. On investigation he found that physicians considered it unwholesome for invalids and children, the temperance people thought it was a stumbling-block to their cause, and that the people in general, when it was at its worst, were alarmed lest it be the cause of some epidemic. Moreover, the expenses of house filtering and boiling the water, as was frequently done, was an unnecessary tax on the people. Domestic filtration at best only half reached the desired end, and these filters might easily become the foci of disease from the decay of accumulated filtrates. Many different analyses of the water showed a varying amount of organic impurities, but all samples contained more than there should be in a water of the highest excellence. In 1882 three chemists examined the water. Two reported it as of "medium purity," and one as "good." The biological examination, made under the same auspices, showed it as "doubtful."

Comparison with the London and Berlin supply showed our water to contain fewer impurities than did the waters of those cities at their sources, but more than was in them after they had been filtered for use. A circular letter which he had addressed to the physicians of the city had elicited the reply that the water was unsatisfactory and needed purification. In view of these facts, he had undertaken an investigation with the hope of solving the difficulty, and of giving the city a cheap and efficient method of filtering its water before delivery. The drainage area of the Potomac above the point where it is tapped for this city is about 12,000 square miles. There are several, at present, small towns in this area which pass their sewage into the river. The lands are highly cultivated and every year more fertilizers are being used, forests are being cut down, and thus increasing sources of pollution are constantly arising. These it will soon be necessary to check, as have already some of the European cities. He then went on to say that there were three ways usually applicable for the filtration of the quantity of water necessary for

a city, namely: *Large subsidence reservoirs, natural infiltration* into galleries built along the margin of or in or under a river, and *artificial filter beds.*

Clarification by subsidence, which was the only system of the three in use here, would not do well in a warm climate, for the water, which must of necessity remain in a quiescent state for three or four weeks, would become full of aquatic life and fungi. This was the cause of our alarm last summer. The natural filtration, which is applicable *only* where large deposits of sand or gravel are found in a convenient position along the water supply, is probably the cheapest and best. In this large chambers or wells are dug, and when full of water percolated from the river or lake are emptied of their contents for use.

Artificial filter beds consist of tight masonry basins with drains along their bottoms radiating to the outlet. First is put in a layer of coarse gravel, then a layer of finer gravel, and finally the true filter, about five feet of fine sand. The river water is then run through these layers and conveyed to a large reservoir for distribution. The first cost of such a system would be tremendous, as about twelve acres of such beds would be necessary to keep this city supplied. It is also very difficult and expensive keeping them clean.

It is estimated that the city at present uses from twenty-five to thirty million gallons daily. With the new tunnel there will be about thirty-five million gallons supplied daily. Eventually from thirty-five to forty million gallons will be needed, and the new system proposed will provide this amount of filtered water.

Capt. Symons proposes to use a modification of a system which has been in use in manufactories for some time. He has found that certain engineering difficulties can be overcome, and can see no reason why it should not be a success. The system requires the use of fourteen steel tanks 30 ft. in diameter and 17 ft. high. 8′ 10″ up from the bottom each tank is divided into two compartments by a stout diaphragm. The diaphragm is perforated by valves and by two large pipes which extend nearly from the bottom to the top of the tank. In the lower compartment is placed about 8 ft. of sand and powdered coke. The valves being shut in the pipes and diaphragm the water is run in on top of the sand and coke and between it and the diaphragm. After percolating through the filter it is run out, ready for use, by an outlet pipe at the bottom. This process is helped by the pressure of the incoming water. When the filters are to be washed, the inlet water is thrown by means of valves into the outlet pipes, the valves in the pipe perforating the diaphragm are opened, and the whole mass rushes with violent agitation into the upper compartment, which is open to the air. The heavy coke and sand are here allowed to settle, while the water which contains the filtrate is run off by an appropriate pipe. The filtering material is then got back into the lower compartment by opening the valves in the diaphragm, being at the same time a second time flushed with water. The river water is now led in by the inlet pipe as before. The first that comes through being somewhat muddy, is conveyed to the upper compartment to be used in the next washing. Each tank is independent of the others and can be cleaned without cutting off a sufficient supply of water.

The very undesirable loss of "head" which the water sustains in filtering can be more tham compensated for by the introduction of centrifugal pumps in the circuit. These pumps are designed to be run by the waste water from the washings with any necessary addition. Previous to leading the water to the filters it is proposed to intimately mix it with one-fifth its bulk of atmospheric air and a certain very small proportion of alum. With these last two additions it is hoped that both the inorganic, the albuminous, gelatinous and ammoniacal matters will be oxidized or precipitated so that they can be easily filtered out.

The experiments of Prof. Frankland, of England, and other chemists, have proved that after being subjected to the above processes, water comes out clear and sparkling, and freed from almost all of its organic and inorganic contents.

The distributing reservoir just west of Georgetown is divided into two parts by a wall. The upper lake contains about 110,000,000 gallons and the lower about 60,000,000 gallons of water. It is proposed to set up these filters between the two parts, to use the upper one as a subsidence reservoir, and the lower one, from which run the city supply pipes and the new tunnel, as a receiving reservoir for the clarified water. He thinks this plan perfectly feasible, economical and efficient.

DR. REYBURN asked where alum was in use?

CAPT. SYMONS replied he had seen it in Somerville, N. J., and it had a wonderful effect. Albany was about to put up similar arrangements.

DR. ANTISELL remarked that the removal of inorganic matters was the first and most important step in this case. He thought that it would be a long time before organic substances in the Potomac would give us any alarm. What we wanted chiefly was the removal of the mud which appears after every heavy rain. This had been accomplished in Europe by good filtering beds. This system he thought the cheapest and best. Aeration was being used in Philadelphia and other places, and was well enough, but the sediment was the principal inconvenience. The method of Hyatt which was proposed he was unfamiliar with.

CAPT. SYMONS replied that the primary object of this system was just what the doctor advised, and that it was much cheaper than the filter bed system, both in first cost and maintenance.

DR. REYBURN said that it had been conclusively shown that proper filtration removed bacteria as well as inorganic matter, and that even when organisms were in great numbers they could be nearly eliminated.

DR. ANTISELL said that that in all certainty there were bacteria in the water, but he never had heard that they had done any harm. It was well, however, to have water as free as possible from them.

DR. KING said that he had recently been conversing with Dr. T. Smith, who had informed him that the water of some European city contained 20,000,000 bacteria to the litre, and ours only 3,000,000.

CAPT. SYMONS, in reply to a question as to the cost, said that he did not know, but it was certainly less than the filter bed system.

DR. TONER asked if it were not possible to use Powder Mill Creek as a subsidence reservoir; and if analyses of our water are being made from time to time?

CAPT. SYMONS replied that it was perfectly possible to use the valley of a stream for a reservoir, and that estimates had already been made in this case as suggested. He said that Dr. Theobald Smith and Dr. Billings had made analyses. He further remarked that the impurities in our water were of such a light nature that they took from three to four weeks to settle, which was too long a time for the good of the water in this climate.

FOREIGN CORRESPONDENCE

LETTER FROM PARIS.

(FROM OUR OWN CORRESPONDENT.)

Inoculations for Rabies—Influence of Diabetes on Gestation—Fumigations with Tar and Turpentine in Croup.

The treatment of rabies by inoculation seems to have taken an unfavorable turn lately, for within the last three months there have been no less than six deaths reported from hydrophobia in persons who had returned home after having gone through the process of M. Pasteur's inoculations. On the 27th of April last a young girl of 11 years of age was bitten by a dog at Chassagne (Jura). Nine days after she was brought to M. Pasteur's laboratory and went regularly through the ten inoculations prescribed. She remained in Paris fifteen days altogether, when she was pronounced cured and sent back to her family. On the 13th of June, that is, forty-eight days after she had been bitten, or thirty-nine days after the first inoculation, symptoms of hydrophobia set in and she died on the 17th of June.

The *Journal de Médecine de Paris* reports that one of the Russian women who had been inoculated at M. Pasteur's laboratory after having been bitten by a wolf has just succumbed to rabies at her own home, whither she had returned "completely cured," according to the expression adopted by M. Pasteur. This death makes the fourteenth of the fifty-four persons bitten by wolves, which would give a mortality of about 26 per cent. On the 21st of July a man aged 35 died at Grenoble from hydrophobia. He had been bitten on the hand by a rabid cat on the 30th of April last, and had gone through the preventive treatment at Paris from the 4th to the 13th of May. This makes the fourth death from hydrophobia of the persons who were treated at M. Pasteur's laboratory, exclusive of the Russians bitten by mad wolves. A letter from St. Petersburg reports that on the 3d and 4th of May last seven persons (five children and two women) were bitten by a mad dog. They were sent on to Paris under the care of a doctor, to be treated after M. Pasteur's method. Of these seven patients, three have died since their return to Russia.

A rather comico-scientific conference was lately held in Paris, the object of which was to criticise the so-called anti-rabic inoculations of M. Pasteur, the actual efficacy of which is questioned in certain quarters. The officers were recruited principally from the Paris Municipal Councillors, and were it not that some of them belong to the medical profession, the proceedings of the meeting would not have been noticed here. One of the speakers, M. Paul Bouillier, a veterinarian, member of the Paris Municipal Council, began by stating that there were no microbes in rabies, or if there was any discovery made in that direction it was not due to M. Pasteur, but to a physician at Toulouse whose modesty has prevented him from claiming the right of the discovery. Moreover, this worthy veterinarian stated that M. Pasteur's inoculations have no effect whatever in preventing hydrophobia; that the method in question serves only to produce meningitis and nervous affections, and that those supposed to have been cured were never affected by the rabic virus of the animal that bit them. He has even challenged M. Pasteur to put his method to a personal test: he and his adversary are to be bitten by an undoubtedly rabid dog. Then the Councillor is to be cauterized, and the Professor inoculated. The contest will be decided when one of them goes mad.

Another speaker made out that according to an official communication, the number of persons inoculated to this date at M. Pasteur's laboratory amounted to 1,630. Among these there have been only twelve deaths: five persons have succumbed to the bites of dogs, one to that of a cat, and six to the bites of wolves. Here M. Bouillier, interrupting, suggested that these patients died from one or other of the diseases above referred to, viz.: meningitis or a nervous affection.

Another critic recalls that M. Pasteur had made the positive announcement that his method would protect even if one or two years had elapsed after the bite. This time was subsequently reduced to thirty-five days, but afterwards he even limited it to fifteen, and now, since the more recent deaths, he will be obliged to reduce it still further to thirteen days.

In an interesting paper by Dr. Lecorché which he lately read before the Medical Society of Hospitals, on the *Influence of Diabetes on Gestation*, the author has shown that diabetes does not render women sterile. He had six diabetic patients who were delivered of children at full term, but they were all delicate. According to this physician, when diabetic women are sterile, it is due to uterine lesions resulting from diabetes. Diabetes has direct influence on the process of gestation, impairs fœtal nutrition, and is favorable to faulty development, especially hydrocephalus. It often produces dysmenorrhœa and amenorrhœa, and an early menopause often results from an overlooked diabetes. If the sugar disappear, the menses may return.

A short time ago Dr. Delthil vaunted the use of *Fumigations of Tar and of the Essence of Turpentine in the Treatment of Croup*. At a meeting of the Medical Society of Hospitals, Dr. Cadet de Gassicourt said that from his experience these vapors had

no solvent action on false membranes placed in the open air. He had tried the method in twelve cases at the hospital, all of which nevertheless necessitated tracheotomy. Four of these were cured and eight died. The fumigations are not well borne, and after the operation they cannot be continued, as they rapidly obstruct the tracheotomy tubes, and at the autopsy coal-like parcels were found in the bronchi, which is one of the dangers of this treatment, which should be rejected. In fact, Dr. Delthil himself has given it up, and contents himself with simple inhalations, at a distance, of the vapors of the essence of turpentine. A. B.

NECROLOGY.

DR. CHARLES H. LIEBERMANN,

of Washington, one of the oldest and most accomplished physicians of that city, died at his residence, 722 Twelfth street, N. W., on March 27, 1886, in his 74th year. He was born in Riga, the capital of the Province of Livonia, in Russia, on September 15, 1812. His father was a military surgeon, and died while the subject of this sketch was a child. His mother belonged to the family of the Radetzkeys, which has furnished many famous personages in German and Polish history. The doctor's uncle became his guardian, and faithfully carried out the injunctions of his father to give the child a good education. He passed through the usual course of the gymnasium, after which he entered the University of Dorpat, from which he graduated in letters and the natural sciences in 1836. From Dorpat he went to Wilna, where he pursued for a time the regular medical studies, but after some time he returned to Dorpat, and from there he went to the University of Berlin, from which he received his medical degree in 1838. In Vienna he became a private pupil of Prof. Diefenbach, and served for some time as his assistant, and became entirely familiar with that eminent surgeon's improvements and methods of practice in surgery. This was at a period when the profession of Europe was making rapid advances in the study and treatment of a class of cases which fell rather under the denomination of deformities, than that of diseases, and which had been everywhere much neglected. At the head of these might be placed strabismus and club-foot. Dr. Liebermann enjoyed the advantages of the lectures and clinics of the famous von Graafe, in his treatment of affections of the eye. This surgeon was then among the most noted practitioners of Europe in this specialty. After receiving his degree Dr. Liebermann visited the chief capitals of Europe to familiarize himself with the practice of medicine and surgery in their best hospitals.

Dr. Liebermann came to the United States early in 1840. He landed at Boston, but had conceived a desire to settle in Washington. This preference was probably developed because of the political views he entertained and the disagreeable experiences he had already suffered from the despotic regulations exercised over the actions of the private citizen in his native land. He began the practice of his profession in Washington shortly after his arrival, opening an office on the north side of Pennsylvania Ave., between 9th and 10th streets. The following is a copy of his first newspaper advertisement, which I have seen. It is taken from the *National Intelligencer* of March 17, 1841: "Dr. Charles H. Liebermann has removed his office to the basement of his residence, northwest corner of 11th and F streets. Dr. L. is ready at all times to advise or practice either medicine, surgery or midwifery, for the poor gratis, not excepting capital operations. March 17, 1841."

After a residence at this F street location for about two years he returned to Pennsylvania Ave. and took a house on the south side, between 9th and 10th streets (see Washington City Directory for 1843). The following notice relative to Dr. Liebermann appeared in the *National Intelligencer* of May 25, 1841, and as it gives some information not otherwise met with as to the Doctor's professional education, and the esteem in which his skill and abilities were held by his teachers and fellow-students, it is copied in part: "*Strabismus, Cataract, and Clubfoot.*—In the last number of the *Medico-Chirurgical Central-Zeitung*, of Berlin, we notice the following paragraph, published by the professors of Berlin: Dr. Charles H. Liebermann, formerly a student at our University, who so eminently distinguished himself here by his attainments as a physician, surgeon, and oculist, has emigrated to the United States of America. While we believed him yet journeying in the Western hemisphere for the purpose of selecting a suitable locality as the theatre of his professional labors, we were agreeably surprised and now sincerely rejoice to see it announced in some of the public papers of that country that Dr. Liebermann had already and with signal success performed there our newly discovered operation for the cure of strabismus, or squinting, as well as several operations for the cataract and clubfoot."

Professor Dieffenbach, the originator of the operation for the cure of strabismus, adds to the above the following: "Dr. Liebermann, who has been one of my distinguished pupils, and for some time after closing his academical course, my associate in the practice of medicine and surgery, was, after myself, the third physician in Europe and the first one in the United States who, as early as October last (1840), performed the operation for strabismus with complete success."

The medical profession of the United States, as well as the politicians of the country, saw with some regret the rapid emigration and the prominent positions given in the professions and public places requiring scientific acquirements, to foreigners. Dr. Liebermann had to contend with this feeling, but he was so well equipped in professional attainments, and was so discreet and honorable in his intercourse with medical men, that he soon gained not only the high regard of his brother practitioners, but of the citizens in general, which he retained to the close of his life. He identified himself, as soon as practicable, with the profession of the city by joining the

Medical Society of the District of Columbia, which he did in 1844. He held in it, at different times, many of its offices, and was its President from 1865 to 1868. He is registered as joining the Medical Association of the District of Columbia in 1843. He was also a member of the Columbia Institute, which had in it a section devoted to medical science. This was, before the days of the Smithsonian Institute, an active scientific organization. He was one of the founders of the Medical Department of the University of Georgetown, and filled the chair of Professor of Surgery from 1849 to 1853. He again filled the same chair from 1857 to 1861, when he resigned, and was elected Emeritus Professor of Surgery. He was also a member of the first Pathological Society of Washington, organized in 1841; also a member of the American Medical Association in 1858. He was well calculated by natural abilities, as well as by his thorough literary and professional training, to make himself interesting in the discussion of diseases, their cause and treatment. His tastes, however, led him to surgery, in which he excelled. He had much mechanical ingenuity, which enabled him to succeed in the treatment of cataract, joints and deformities. He was for over twenty years the leading oculist in Washington. He was for years physician to the Sisters of the Visitation Convent, and the consulting physician to Georgetown College and the Convent in Georgetown. He was also a member of the staff and consulting surgeon to the Providence Hospital for a number of years.

He was systematic and thorough in whatever he engaged in, and was thus enabled for years to attend with punctuality and efficiency to a large and lucrative practice. He took an active part in the founding of the Children's Hospital, and for some years served on its Board of Managers. In the efforts made by the Medical Society of the District of Columbia to build a hall for its meetings and the storage of a library, he was one of the leading advocates and financial friends, and although the project failed, the profession retained for him and his exertions in its behalf a kindly recollection.

He was married in 1841 to a Miss Betzold, of Alexandria, by whom he had two children, a son and daughter. Charles only survives. In 1872 he retired from the practice of medicine, removing his sign from the door. He has occasionally since met physicians in consultation in cases of old patients, when strongly urged to do so, but has never assumed charge of a case since. His mental powers to the last seemed as active and strong as in the middle period of life. While he was of delicate constitution, his life was so regular and prudent that he was enabled to perform a great deal of labor. He was a man of marked traits of character; his tenacious memory for details was rarely equaled. He had at the same time an orderly and logical method of reasoning, and was pertinacious in getting direct answers to his questions, put to patients or persons on matters of business. In every-day life he was methodical and exact. He lived well, but not extravagantly, entertained his friends occasionally at his table, and was a capital host.

The Medical Society of the District of Columbia met in special meeting on March 29, and passed resolutions expressive of the esteem in which he was held, and of sympathy for his family, and resolved to attend his funeral in a body. J. M. T.

DR. GEORGE SUTTON.

At a regular meeting of the Dearborn County (Indiana) Medical Society, held in the Court-House in the City of Lawrenceburg on the 29th of June, 1886, the following preamble and resolutions were unanimously adopted, to-wit:

WHEREAS, It has pleased the Great Creator and Ruler of the Universe to remove from our midst our friend, associate and professional brother, Dr. George Sutton, and

WHEREAS, In view of the very great loss this Society has sustained by this event, and in view of the greater loss to the profession at large, and the great loss sustained by the various scientific bodies of which he was an honored member, and still the greater loss to his family and relatives. Therefore be it

Resolved, That it is but a just tribute to his memory to say, that in regretting his removal from our midst, we mourn for one who was in every way worthy of our highest regard as a friend and professional associate, and of the greatest esteem, as a neighbor and a citizen.

Resolved, That we sincerely sympathize with the daughter and son, on this dispensation with which it has pleased Divine Providence to afflict them, and we commend them to Him who orders all things for the best, as He is too wise to err, and too good to do wrong.

Resolved, That a copy of this preamble and these resolutions be spread on the records of this Society, and that a copy be sent to the afflicted family; also a copy be sent to the *Cincinnati Lancet and Clinic*, and to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

A. B. HAINES, M.D.,
R. C. BOND, M.D.,
JAMES LAMB, M.D.,
Committee.

BOOK REVIEWS.

MEDICAL AND SURGICAL DIRECTORY OF THE UNITED STATES. 1455 pp. Detroit: R. L. Polk & Co. 1886.

In this Directory the publishers have supplied a much needed work. It not only gives a list of physicians and surgeons arranged by States, but an immense amount of other information of interest to the profession and those having business relations therewith. It contains the names of nearly 80,000 persons practicing medicine within the United States, conveniently arranged, accompanied by all the information attainable regarding place and time of graduation, etc. A good descriptive article is given with each State list

embodying such matters as location, boundaries, extent in miles and acres, latitude and longitude, statistics regarding climate, temperature, population, rate of mortality, number of deaths from consumption, all medical and charitable institutions, medical societies, and the full text of all State laws relating to the profession. There is also a complete list of all medical colleges, either existing or extinct in the United States and Canada, of officers of the medical departments of the U. S. Army, Navy, Marine Hospital Service and pension department, and a complete directory of the medical journals of the United States.

The publishers have successfully accomplished a work of great magnitude in collecting, correcting and arranging in such an excellent manner the army of doctors belonging to the various pathies in the United States. The arrangement and display of the advertising department is unique, and the general typographical appearance excellent. It is intended to publish the work at regular intervals.

AMERICAN MEDICAL ASSOCIATION.

FORMED IN 1846.

Next annual meeting will be held June 7th, 8th, 9th, and 10th, 1887, in Chicago, Ill. President, E. H. Gregory, M.D., St. Louis, Mo. Permanent Secretary, W. B. Atkinson, M.D., Philadelphia, Penn. Assistant Secretary, J. Nevins Hyde, M.D., Chicago, Ill. Treasurer, Richard J. Dunglison, M.D., Philadelphia, Penn. Librarian, C. H. A. Kleinschmidt, M.D., Washington, D. C. Chairman of Committee of Arrangements, Charles Gilman Smith, M.D., Chicago, Ill.

All membership dues should be sent direct to the Treasurer, RICHARD J. DUNGLISON, M.D., lock box 1274, Philadelphia, Penn.

MISCELLANEOUS.

MILK-POISONING AT LONG BRANCH.—An outbreak of illness from bad milk has recently occurred at Long Branch in the Ocean Wave Hotel. A large number of the guests and attaches were made ill, suffering from vomiting and purging. The proprietor was able to trace the trouble to milk, which had become stale on the dealers hands, and to which he had added chemicals to preserve or freshen it.

THE BRITISH MEDICAL ASSOCIATION AND THE INTERNATIONAL CONGRESS.—A cablegram to the *New York Medical Journal* from Brighton, giving an account of the meeting of the British Medical Association, says: "The American delegation present, including Dr. Davis and others, made a statement before a crowded general meeting in regard to the affairs of the International Medical Congress. The delegates were received with enthusiasm, and their renewed invitation to the members of the Association to visit Washington in 1887 was cordially accepted."

ADULTERATED MILK IN CHICAGO.—The Health Department of the City has found that dealers are skimming and watering the milk put upon the market. Those against whom there is evidence will be arrested and dealt with.

NEBRASKA STATE MEDICAL SOCIETY.—At the late annual meeting of this Society the following officers for the ensuing year were elected:

President, Richard C. Moore, M.D., of Omaha; 1st Vice-President, Milton Lane, M.D., of Lincoln; 2d Vice-President, N. F. Donaldson, M.D., of North Platte; Cor. Sec., H. B. Lowrey, M.D., of Lincoln; Rec. Sec., A. S. von Mansfelde, M.D., of Ashland.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 7, 1886, TO AUGUST 13, 1886.

RETIRED.

Brigadier-General Robert Murray, Surgeon-General U. S. A. August 6, 1886.

Major Wm. D. Wolverton, Surgeon, granted one month's leave of absence, to commence on or about Aug. 15, 1886. (S. O. 104, Div. of the Atlantic, Aug. 7, 1886.)

Major Edwin Bentley, Surgeon, ordered from Dept. Texas to Dept. East.

Capt. D. M. Appel, Asst. Surgeon, ordered from Dept. East to Dept. Texas. (S. O. 179, A. G. O., Aug. 4, 1886.)

Capt. Leonard Y. Loring, Asst. Surgeon, granted leave of absence for one month, on surgeon's certificate of disability, with permission to apply for an extension of two months. (S. O. 59, Div. Pacific, Aug. 2, 1886.)

Capt. Geo. W. Adair, Asst. Surgeon, ordered for duty as Post Surgeon, Ft. Brady, Mich.

First Lieut. Chas. M. Gandy, Asst. Surgeon, granted leave of absence for one month, with permission to apply for one month's extension. (S. O. 103, Div. Atlantic, Aug. 6, 1886).

Capt. James C. Merrill, Asst. Surgeon, assigned to duty as Post Surgeon at Ft. Klamath, Oregon. (S. O. 130, Dept. Col., July 30, 1886.)

Capt. Robert B. Benham, Asst. Surgeon, ordered from temporary duty at Ft. Omaha, Neb., and ordered to Ft. Bridger, Wyo. (S. O. 97, Dept. Platte, Aug. 5, 1886.)

APPOINTMENTS.

To be Asst. Surgeon, with the rank of First Lieutenant:

Henry S. T. Harris, Jan. 5, 1886.

Leonard Wood, Jan. 5, 1886.

William B. Banister, Jan. 26, 1886.

Charles F. Mason, May 5, 1886.

PROMOTIONS.

To be Surgeon, with the rank of Major:

Capt. John H. Bartholf, Asst. Surgeon, Jan. 4, 1886.

Capt. James P. Kimball, Asst. Surgeon, Jan. 24, 1886. (A. G. O., Aug. 2, 1886.)

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, DURING THE WEEK ENDING AUGUST 14, 1886.

Walton, Thomas C., Surgeon, to remain on present duty until Sept. 1, 1887.

White, C. H. Surgeon, to remain on present duty until August 21, 1887.

Rush, C. W., P. A. Surgeon, authorized to delay ten days, under orders to Sitka, Alaska.

Lumsden, G. P., P. A. Surgeon, ordered to hospital, Mare Island, Cal.

Baldwin, L. B., P. A. Surgeon, ordered to U. S. S. "Ranger."

Neilson, J. L., Surgeon, detached from the U. S. S. "Ranger," to proceed home and wait orders.